Department of Defense
Fiscal Year (FY) 2022 Budget Estimates

May 2021

Navy

Justification Book Volume 3 of 5

Other Procurement, Navy

BA 03

The estimated cost of this report for the Department of the Navy (DON) is $23,190. The estimated total cost for supporting the DON budget justification material is approximately $3,919,738 during the 2021 fiscal year. This includes $84,638 in supplies and $3,835,100 in labor.

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Other Procurement, Navy

For procurement, production, and modernization of support equipment and materials not otherwise provided for, Navy ordnance (except ordnance for new aircraft, new ships, and ships authorized for conversion); the purchase of passenger motor vehicles for replacement only; expansion of public and private plants, including the land necessary therefore, and such lands and interests therein, may be acquired, and construction prosecuted thereon prior to approval of title; and procurement and installation of equipment, appliances, and machine tools in public and private plants; reserve plant and Government and contractor-owned equipment layaway, $10,875,912,000, to remain available for obligation until September 30, 2024.

FY 2022 Overseas Contingency Operations funding can be separated into the following categories:

- OCO for Direct War Costs ($7,706,000): Direct War costs are those combat or direct combat support costs that will not continue to be expended once combat operations end at major contingency locations.
- OCO for Enduring Requirements ($405,204,000): OCO for Enduring Requirements are enduring in-theater and in-CONUS costs that will likely remain after combat operations cease, and have previously been funded in OCO.

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Department of the Navy
FY 2022 President's Budget
Exhibit P-1 FY 2022 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request
Other Procurement, Navy	10,623,940	10,853,821	10,875,912
Total Department of the Navy	10,623,940	10,853,821	10,875,912

P-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 10, 2021 at 09:45:48
*Includes Division A, Title IX and X of the Consolidated Appropriations Act, 2020 (P.L. 116-93), Division F, Title IV and V from the Further Consolidated Appropriations Act, 2020 (P.L. 116-94) and the Coronavirus Aid, Relief, and Economic Security Act (P.L. 116-136).
** Includes Division C, Title IX and Division J, Title IV of the Consolidated Appropriations Act, 2021 (P.L. 116-260).

Department of the Navy
FY 2022 President's Budget
Exhibit P-1 FY 2022 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: Other Procurement, Navy

Budget Activity	FY 2020 Actual*	FY 2021 Enacted**	FY 2022 Request
01. Ships Support Equipment	3,593,032	3,784,610	4,067,856
02. Communications & Electronics Equip	3,449,189	3,446,238	3,405,701
03. Aviation Support Equipment	722,634	767,052	730,746
04. Ordnance Support Equipment	1,050,623	1,096,603	1,078,684
05. Civil Engineering Support Equip	176,947	133,533	153,567
06. Supply Support Equipment	639,595	693,288	690,833
07. Personnel & Command Support Equip	625,329	574,604	324,120
08. Spares and Repair Parts	366,591	357,893	424,405
Total Other Procurement, Navy	10,623,940	10,853,821	10,875,912

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Department of the Navy
FY 2022 President's Budget
Exhibit P-1 FY 2022 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Actual* Quantity	FY 2020 Actual* Cost	FY 2021 Enacted** Quantity	FY 2021 Enacted** Cost	FY 2022 Request Quantity	FY 2022 Request Cost	Sec
	Budget Activity 01: Ships Support Equipment								
	Ship Propulsion Equipment								
1	Surface Power Equipment	A		14,490		10,661		41,414	U
	Generators								
2	Surface Combatant HM&E	A		66,561		54,628		83,746	U
	Navigation Equipment								
3	Other Navigation Equipment	A		72,744		74,084		72,300	U
	Other Shipboard Equipment								
4	Sub Periscope, Imaging and Supt Equip Prog	A		160,803		190,954		234,932	U
5	DDG Mod	A		564,966		512,155		583,136	U
6	Firefighting Equipment	A		17,547		18,394		15,040	U
7	Command and Control Switchboard	A		2,086		2,374		2,194	U
8	LHA/LHD Midlife	A		80,332		66,512		133,627	U
9	LCC 19/20 Extended Service Life Program	A						4,387	U
10	Pollution Control Equipment	B		21,820		20,222		18,159	U
11	Submarine Support Equipment	A		44,895		64,632		88,284	U
12	Virginia Class Support Equipment	A		28,465		22,868		22,669	U
13	LCS Class Support Equipment			23,426		7,976		9,640	U
14	Submarine Batteries			22,690		31,322		21,834	U

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Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Actual* Quantity	FY 2020 Actual* Cost	FY 2021 Enacted** Quantity	FY 2021 Enacted** Cost	FY 2022 Request Quantity	FY 2022 Request Cost	Sec
15	LPD Class Support Equipment			46,945		50,475		34,292	U
16	DDG 1000 Class Support Equipment	A		8,530		37,859		126,107	U
17	Strategic Platform Support Equip	A		14,331		15,429		12,256	U
18	DSSP Equipment	A		2,909		2,918		10,682	U
19	CG Modernization	A		193,990		87,978		156,951	U
20	LCAC	A		3,392		6,758		21,314	U
21	Underwater EOD Equipment			77,620		16,842		24,146	U
22	Items Less Than $5 Million	A		85,187		105,715		84,789	U
23	Chemical Warfare Detectors	A		2,961		3,044		2,997	U
24	Submarine Life Support System	A		6,635		5,885			U
	Reactor Plant Equipment								
25	Ship Maintenance, Repair and Modernization	A		1,000,000		1,215,721		1,307,651	U
26	Reactor Power Units	A		5,340		5,305		3,270	U
27	Reactor Components	A		452,692		401,219		438,729	U
	Ocean Engineering								
28	Diving and Salvage Equipment	A		11,854		11,143		10,772	U
	Small Boats								
29	Standard Boats	A		67,102		65,555		58,770	U
	Production Facilities Equipment								
30	Operating Forces Ipe	A		206,455		218,112		168,822	U

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Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Actual* Quantity	FY 2020 Actual* Cost	FY 2021 Enacted** Quantity	FY 2021 Enacted** Cost	FY 2022 Request Quantity	FY 2022 Request Cost	Sec
	Other Ship Support								
31	LCS Common Mission Modules Equipment			38,730		36,323		74,231	U
32	LCS MCM Mission Modules			64,789		189,397		40,630	U
33	LCS ASW Mission Modules			24,617		38,359		1,565	U
34	LCS SUW Mission Modules			14,598		24,412		3,395	U
35	LCS In-Service Modernization	A		85,714		128,848		122,591	U
36	Small & Medium UUV	A		25,601		40,531		32,534	U
	Logistic Support								
37	LSD Midlife & Modernization			32,215					U
	Total Ships Support Equipment			3,593,032		3,784,610		4,067,856	
	Budget Activity 02: Communications & Electronics Equip								
	Ship Sonars								
38	SPQ-9B Radar	A		21,664		27,517		15,927	U
39	AN/SQQ-89 Surf ASW Combat System	A		121,966		128,664		131,829	U
40	SSN Acoustic Equipment	A		367,555		372,822		379,850	U
41	Undersea Warfare Support Equipment	A		8,967		9,286		13,965	U
	ASW Electronic Equipment								
42	Submarine Acoustic Warfare System	A		22,331		26,066		24,578	U
43	SSTD	A		12,439		13,241		11,010	U

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Department of the Navy
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Appropriation: 1810N Other Procurement, Navy

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44	Fixed Surveillance System	A		438,944		406,446		363,651	U
45	SURTASS	A		21,923		63,838		67,500	U
	Electronic Warfare Equipment								
46	AN/SLQ-32	A		340,706		353,961		370,559	U
	Reconnaissance Equipment								
47	Shipboard IW Exploit	A		186,814		231,072		261,735	U
48	Automated Identification System (AIS)			5,368		3,862		3,777	U
	Other Ship Electronic Equipment								
49	Cooperative Engagement Capability	B		30,452		26,006		24,641	U
50	Naval Tactical Command Support System (NTCSS)	A		15,062		15,385		14,439	U
51	ATDLS	A		62,753		103,835		101,595	U
52	Navy Command and Control System (NCCS)			3,363		3,594		3,535	U
53	Minesweeping System Replacement	A		19,448		15,744		15,640	U
54	Shallow Water MCM	B		8,730		5,493		5,610	U
55	Navstar GPS Receivers (SPACE)	A		23,294		38,043		33,097	U
56	American Forces Radio and TV Service	A		2,617		2,592		2,513	U
57	Strategic Platform Support Equip	A		7,973		7,985		4,823	U
	Aviation Electronic Equipment								
58	Ashore ATC Equipment	A		71,037		82,970		83,464	U
59	Afloat ATC Equipment	A		63,279		57,628		67,055	U

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60	ID Systems	A		24,926		23,815		46,918	U
61	Joint Precision Approach And Landing System (			85,445		96,751		35,386	U
62	Naval Mission Planning Systems	A		15,296		13,947		17,951	U
	Other Shore Electronic Equipment								
63	Maritime Integrated Broadcast System					1,375		2,360	U
64	Tactical/Mobile C4I Systems	A		33,211		22,771		18,919	U
65	DCGS-N	A		14,942		18,872		16,691	U
66	CANES			406,399		389,585		412,002	U
67	RADIAC	A		6,450		10,335		9,074	U
68	CANES-Intell			56,428		48,654		51,593	U
69	GPETE	A		12,214		8,133		23,930	U
70	MASF			5,193		3,556		8,795	U
71	Integ Combat System Test Facility	A		7,038		5,934		5,829	U
72	EMI Control Instrumentation	A		4,209		4,334		3,925	U
73	Items Less Than $5 Million	A		162,492		154,572		156,042	U
	Shipboard Communications								
74	Shipboard Tactical Communications	A		47,811		53,743		43,212	U
75	Ship Communications Automation	A		128,187		124,288		90,724	U
76	Communications Items Under $5M	A		29,486		45,120		44,447	U

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Appropriation: 1810N Other Procurement, Navy

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	Submarine Communications								
77	Submarine Broadcast Support	A		50,833		25,790		47,579	U
78	Submarine Communication Equipment	A		60,055		56,491		64,642	U
	Satellite Communications								
79	Satellite Communications Systems	A		45,084		47,421		38,636	U
80	Navy Multiband Terminal (NMT)			75,020		55,342		34,723	U
	Shore Communications								
81	Joint Communications Support Element (JCSE)	A		4,293		4,398		2,651	U
	Cryptographic Equipment								
82	Info Systems Security Program (ISSP)	A		166,540		157,551		146,879	U
83	MIO Intel Exploitation Team	A		988		985		977	U
	Cryptologic Equipment								
84	Cryptologic Communications Equip	A		13,090		14,845		17,809	U
	Other Electronic Support								
85	Navy METOC-1	A		943					U
86	NAVY METOC-4	A		943					U
87	USMC METOC-3	A		8,531					U
88	DON UAS 1	A		392					U
89	DON UAS 2	A		11,236					U
90	DON ACTS	A		1,545					U

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91	DON UAS Video 5 (Afloat)	A		9,400					U
92	Coast Guard Equipment	A		60,656		61,580		63,214	U
	Drug Interdiction Support								
93	Other Drug Interdiction Support	A		43,228					U
	Total Communications & Electronics Equip			3,449,189		3,446,238		3,405,701	
	Budget Activity 03: Aviation Support Equipment								
	Sonobuoys								
94	Sonobuoys - All Types	A		313,554		303,493		249,121	U
	Aircraft Support Equipment								
95	Minotaur	A		5,000		5,077		4,963	U
96	Weapons Range Support Equipment	A		101,793		85,469		98,898	U
97	Aircraft Support Equipment	A		187,926		236,655		178,647	U
98	Advanced Arresting Gear (AAG)	A		4,725		16,059		22,265	U
99	Meteorological Equipment	A		12,407		15,192		13,687	U
100	Legacy Airborne MCM	A		15,998		6,674		4,446	U
101	Lamps Equipment			792		1,189		1,470	U
102	Aviation Support Equipment	A		62,871		57,174		70,665	U
103	UMCS-Unman Carrier Aviation(UCA)Mission Cntrl	A		17,568		40,070		86,584	U
	Total Aviation Support Equipment			722,634		767,052		730,746	

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	Budget Activity 04: Ordnance Support Equipment								
	Ship Gun System Equipment								
104	Ship Gun Systems Equipment	A		5,451		5,540		5,536	U
	Ship Missile Systems Equipment								
105	Harpoon Support Equipment	A						204	U
106	Ship Missile Support Equipment	A		208,326		250,356		237,987	U
107	Tomahawk Support Equipment	A		59,436		77,370		88,726	U
	FBM Support Equipment								
108	Strategic Missile Systems Equip	A		258,901		251,683		281,259	U
	ASW Support Equipment								
109	SSN Combat Control Systems	A		143,678		162,167		143,289	U
110	ASW Support Equipment	A		18,181		23,511		30,595	U
	Other Ordnance Support Equipment								
111	Explosive Ordnance Disposal Equip	B		24,251		9,594		1,721	U
112	Items Less Than $5 Million	A		5,071		6,356		8,746	U
	Other Expendable Ordnance								
113	Anti-Ship Missile Decoy System	A		37,452		72,056		76,994	U
114	Submarine Training Device Mods	A		67,229		69,240		75,813	U

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115	Surface Training Equipment	A		222,647		168,730		127,814	U
	Total Ordnance Support Equipment			1,050,623		1,096,603		1,078,684	
	Budget Activity 05: Civil Engineering Support Equip								
	Civil Engineering Support Equipment								
116	Passenger Carrying Vehicles	A		4,735		6,123		4,140	U
117	General Purpose Trucks	A		9,882				2,805	U
118	Construction & Maintenance Equip	A		45,213		42,510		48,403	U
119	Fire Fighting Equipment	A		12,111		5,352		15,084	U
120	Tactical Vehicles	B		32,036		31,475		27,400	U
121	Pollution Control Equipment	A		12,633		2,630		2,607	U
122	Items less than $5 Million	A		59,164		44,272		51,963	U
123	Physical Security Vehicles	A		1,173		1,171		1,165	U
	Total Civil Engineering Support Equip			176,947		133,533		153,567	
	Budget Activity 06: Supply Support Equipment								
	Supply Support Equipment								
124	Supply Equipment	A		17,241		19,693		24,698	U
125	First Destination Transportation	A		5,838		4,956		5,385	U
126	Special Purpose Supply Systems	A		616,516		668,639		660,750	U
	Total Supply Support Equipment			639,595		693,288		690,833	

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Budget Activity 07: Personnel & Command Support Equip									
	Training Devices								
127	Training Support Equipment	A		3,633		4,026		3,465	U
128	Training and Education Equipment	A		87,471		77,876		60,114	U
	Command Support Equipment								
129	Command Support Equipment	A		84,623		32,390		31,007	U
130	Medical Support Equipment	A		12,415		16,499		7,346	U
132	Naval MIP Support Equipment	A		6,097		4,106		2,887	U
133	Operating Forces Support Equipment	A		17,659		16,024		12,815	U
134	C4ISR Equipment	A		25,831		6,697		6,324	U
135	Environmental Support Equipment	A		22,123		27,503		25,098	U
136	Physical Security Equipment	A		165,360		139,693		110,647	U
137	Enterprise Information Technology	A		53,065		42,680		31,709	U
	Other								
140	Cancelled Account Adjustments	A		65					U
141	Next Generation Enterprise Service	A		130,241		173,443		41	U
142	Cyberspace Activities	A				15,221		12,859	U
999	Classified Programs			16,746		18,446		19,808	U
Total Personnel & Command Support Equip				625,329		574,604		324,120	

P-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 10, 2021 at 09:45:48
*Includes Division A, Title IX and X of the Consolidated Appropriations Act, 2020 (P.L. 116-93), Division F, Title IV and V from the Further Consolidated Appropriations Act, 2020 (P.L. 116-94) and the Coronavirus Aid, Relief, and Economic Security Act (P.L. 116-136).
** Includes Division C, Title IX and Division J, Title IV of the Consolidated Appropriations Act, 2021 (P.L. 116-260).

Department of the Navy
FY 2022 President's Budget
Exhibit P-1 FY 2022 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2020 Actual* Quantity	FY 2020 Actual* Cost	FY 2021 Enacted** Quantity	FY 2021 Enacted** Cost	FY 2022 Request Quantity	FY 2022 Request Cost	Sec
	Budget Activity 08: Spares and Repair Parts								
	Spares and Repair Parts								
143	Spares and Repair Parts	A		366,591		357,893		424,405	U
	Total Spares and Repair Parts			366,591		357,893		424,405	
	Total Other Procurement, Navy			10,623,940		10,853,821		10,875,912	

P-122BAS: FY 2022 President's Budget (Total Base Published Version), as of May 10, 2021 at 09:45:48
*Includes Division A, Title IX and X of the Consolidated Appropriations Act, 2020 (P.L. 116-93), Division F, Title IV and V from the Further Consolidated Appropriations Act, 2020 (P.L. 116-94) and the Coronavirus Aid, Relief, and Economic Security Act (P.L. 116-136).
** Includes Division C, Title IX and Division J, Title IV of the Consolidated Appropriations Act, 2021 (P.L. 116-260).

Department of the Navy
FY 2022 President's Budget
Exhibit P-1 FY 2022 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation	FY 2021 OCO Enacted*	FY 2022 Direct War and Enduring Costs
Other Procurement, Navy	341,612	412,910
Total Department of the Navy	341,612	412,910

P-122DWE: FY 2022 President's Budget (Direct War and Enduring Published Version), as of May 10, 2021 at 09:49:21
* Includes Division C, Title IX and Division J, Title IV of the Consolidated Appropriations Act, 2021 (P.L. 116-260).

Department of the Navy
FY 2022 President's Budget
Exhibit P-1 FY 2022 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: Other Procurement, Navy

Budget Activity	FY 2021 OCO Enacted*	FY 2022 Direct War and Enduring Costs
01. Ships Support Equipment	22,050	323,893
02. Communications & Electronics Equip	213,000	85,000
03. Aviation Support Equipment	86,413	1,116
04. Ordnance Support Equipment	2,124	
07. Personnel & Command Support Equip	18,025	2,901
Total Other Procurement, Navy	341,612	412,910

P-122DWE: FY 2022 President's Budget (Direct War and Enduring Published Version), as of May 10, 2021 at 09:49:21
* Includes Division C, Title IX and Division J, Title IV of the Consolidated Appropriations Act, 2021 (P.L. 116-260).

Department of the Navy
FY 2022 President's Budget
Exhibit P-1 FY 2022 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2021 OCO Enacted* Quantity	FY 2021 OCO Enacted* Cost	FY 2022 Direct War and Enduring Costs Quantity	FY 2022 Direct War and Enduring Costs Cost	Sec
	Budget Activity 01: Ships Support Equipment						
	Reactor Plant Equipment						
25	Ship Maintenance, Repair and Modernization	A				317,303	U
	Small Boats						
29	Standard Boats	A		19,104			U
	Other Ship Support						
36	Small & Medium UUV	A		2,946		6,590	U
	Total Ships Support Equipment			22,050		323,893	
	Budget Activity 02: Communications & Electronics Equip						
	ASW Electronic Equipment						
44	Fixed Surveillance System	A		213,000		85,000	U
	Total Communications & Electronics Equip			213,000		85,000	
	Budget Activity 03: Aviation Support Equipment						
	Sonobuoys						
94	Sonobuoys - All Types	A		26,196			U
	Aircraft Support Equipment						
97	Aircraft Support Equipment	A		60,217		1,116	U
	Total Aviation Support Equipment			86,413		1,116	

P-122DWE: FY 2022 President's Budget (Direct War and Enduring Published Version), as of May 10, 2021 at 09:49:21
* Includes Division C, Title IX and Division J, Title IV of the Consolidated Appropriations Act, 2021 (P.L. 116-260).

Department of the Navy
FY 2022 President's Budget
Exhibit P-1 FY 2022 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1810N Other Procurement, Navy

Line No	Item Nomenclature	Ident Code	FY 2021 OCO Enacted* Quantity	FY 2021 OCO Enacted* Cost	FY 2022 Direct War and Enduring Costs Quantity	FY 2022 Direct War and Enduring Costs Cost	Sec
	Budget Activity 04: Ordnance Support Equipment						
	Other Ordnance Support Equipment						
111	Explosive Ordnance Disposal Equip	B		2,124			U
	Total Ordnance Support Equipment			2,124			
	Budget Activity 07: Personnel & Command Support Equip						
	Training Devices						
128	Training and Education Equipment	A		11,500			U
	Command Support Equipment						
130	Medical Support Equipment	A		3,525		1,566	U
135	Environmental Support Equipment	A				1,335	U
136	Physical Security Equipment	A		3,000			U
	Total Personnel & Command Support Equip			18,025		2,901	
	Total Other Procurement, Navy			341,612		412,910	

P-122DWE: FY 2022 President's Budget (Direct War and Enduring Published Version), as of May 10, 2021 at 09:49:21
* Includes Division C, Title IX and Division J, Title IV of the Consolidated Appropriations Act, 2021 (P.L. 116-260).

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Master Line Item Table of Contents (by Appropriation then Line Number)

Appropriation 1810N: Other Procurement, Navy

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2	01	02	0200	Surface Combatant HM&E	Volume 1 - 19
3	01	06	0670	Other Navigation Equipment	Volume 1 - 33
4	01	09	0840	Sub Periscope, Imaging and Supt Equip Prog	Volume 1 - 109
5	01	09	0900	DDG Mod	Volume 1 - 159
6	01	09	0910	Firefighting Equipment	Volume 1 - 223
7	01	09	0925	Command and Control Switchboard	Volume 1 - 237
8	01	09	0933	LHA/LHD Midlife	Volume 1 - 245
9	01	09	0934	LCC 19/20 Extended Service Life Program	Volume 1 - 295
10	01	09	0935	Pollution Control Equipment	Volume 1 - 299
11	01	09	0941	Submarine Support Equipment	Volume 1 - 317
12	01	09	0942	Virginia Class Support Equipment	Volume 1 - 331
13	01	09	0944	LCS Class Support Equipment	Volume 1 - 339
14	01	09	0945	Submarine Batteries	Volume 1 - 351
15	01	09	0946	LPD Class Support Equipment	Volume 1 - 357
16	01	09	0947	DDG 1000 Class Support Equipment	Volume 1 - 393

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
17	01	09	0950	Strategic Platform Support Equip	Volume 1 - 407
18	01	09	0955	Deep Subm Sys Proj (DSSP) Equip	Volume 1 - 415
19	01	09	0960	CG Modernization	Volume 1 - 423
20	01	09	0970	LCAC	Volume 1 - 449
21	01	09	0977	Underwater EOD Equipment	Volume 1 - 453
22	01	09	0981	Items less than $5 Million	Volume 1 - 477
23	01	09	0989	Chemical Warfare Detectors	Volume 1 - 511
24	01	09	0990	Submarine Life Support System	Volume 1 - 541
25	01	10	1000	Ship Maintenance, Repair and Modernization	Volume 1 - 547
26	01	10	1010	Reactor Power Units	Volume 1 - 557
27	01	10	1020	Reactor Components	Volume 1 - 561
28	01	11	1130	Diving and Salvage Equipment	Volume 1 - 565
29	01	12	1210	Standard Boats	Volume 1 - 587
30	01	14	1445	Operating Forces IPE	Volume 1 - 601
31	01	15	1600	LCS Common Mission Modules Equipment	Volume 1 - 617
32	01	15	1601	LCS MCM Mission Modules	Volume 1 - 633
33	01	15	1602	LCS ASW Mission Modules	Volume 1 - 647
34	01	15	1603	LCS SUW Mission Modules	Volume 1 - 659

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
35	01	15	1604	LCS In-Service Modernization	Volume 1 - 669
36	01	15	1611	Small & Medium UUV	Volume 1 - 685
37	01	16	1610	LSD Midlife & Modernization	Volume 1 - 697

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
38	02	02	2026	SPQ-9B Radar	Volume 2 - 1
39	02	02	2136	AN/SQQ-89 Surf ASW Cmbt Sys	Volume 2 - 11
40	02	02	2150	SSN Acoustic Equipment	Volume 2 - 33
41	02	02	2176	Undersea Warfare Support Equipment	Volume 2 - 73
42	02	03	2210	Submarine Acoustic Warfare System	Volume 2 - 81
43	02	03	2213	Surface Ship Torpedo Def (SSTD)	Volume 2 - 103
44	02	03	2225	Fixed Surveillance System	Volume 2 - 111
45	02	03	2237	SURTASS	Volume 2 - 115
46	02	04	2312	AN/SLQ-32	Volume 2 - 135
47	02	05	2360	Shipboard IW Exploit	Volume 2 - 165

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
48	02	05	2361	Automatic Identification System (AIS)	Volume 2 - 195
49	02	07	2606	Cooperative Engagement Capability	Volume 2 - 199
50	02	07	2611	Naval Tact Cmd Supt Sys (NTCSS)	Volume 2 - 221
51	02	07	2614	Adv Tact Data Link Sys (ATDLS)	Volume 2 - 231
52	02	07	2618	Navy Command and Control System (NCCS)	Volume 2 - 241
53	02	07	2622	Minesweeping System Replacement	Volume 2 - 249
54	02	07	2624	Shallow Water MCM	Volume 2 - 253
55	02	07	2657	NAVSTAR GPS Receivers (Space)	Volume 2 - 263
56	02	07	2666	American Forces Radio and TV Service (AFRTS)	Volume 2 - 275
57	02	07	2676	Strategic Platform Support Equip	Volume 2 - 283
58	02	09	2820	Ashore ATC Equipment	Volume 2 - 287
59	02	09	2830	Afloat ATC Equipment	Volume 2 - 347
60	02	09	2851	ID Systems	Volume 2 - 383
61	02	09	2867	Joint Precision Approach and Landing System(JPALS)	Volume 2 - 405
62	02	09	2876	Naval Mission Planning Systems	Volume 2 - 411
63	02	10	2900	Maritime Integrated Broadcast System	Volume 2 - 419
64	02	10	2906	Tactical/Mobile C4I Systems	Volume 2 - 423
65	02	10	2914	Distributed Common Ground System-Navy (DCGS-N)	Volume 2 - 437

Appropriation 1810N: Other Procurement, Navy

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67	02	10	2920	RADIAC	Volume 2 - 467
68	02	10	2925	CANES Intell	Volume 2 - 479
69	02	10	2940	Gen Purp Elec Test Equip (GPETE)	Volume 2 - 489
70	02	10	2950	Network Tactical Common Data Link (CDL)	Volume 2 - 495
71	02	10	2960	Integ Combat System Test Facility	Volume 2 - 505
72	02	10	2970	EMI Control Instrumentation	Volume 2 - 509
73	02	10	2980	Items less than $5 Million	Volume 2 - 513
74	02	11	3010	Shipboard Tactical Comms	Volume 2 - 545
75	02	11	3050	Ship Communications Automation	Volume 2 - 557
76	02	11	3057	Communications Items under $5M	Volume 2 - 579
77	02	12	3107	Submarine Broadcast Support	Volume 2 - 593
78	02	12	3130	Submarine Communication Equipment	Volume 2 - 597
79	02	13	3215	Satellite Communications Systems	Volume 2 - 601
80	02	13	3216	Navy Multiband Terminal (NMT)	Volume 2 - 619
81	02	14	3302	Joint Communications Support Element (JCSE)	Volume 2 - 637
82	02	15	3415	Info Systems Security Program (ISSP)	Volume 2 - 641
83	02	15	3417	MIO Intel Exploitation Team	Volume 2 - 677

Appropriation 1810N: Other Procurement, Navy

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84	02	16	3501	Cryptologic Communications Equip	Volume 2 - 681
92	02	17	3620	Coast Guard Equipment	Volume 2 - 693

Appropriation 1810N: Other Procurement, Navy

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95	03	03	3640	Minotaur	Volume 3 - 15
96	03	03	4204	Weapons Range Support Equipment	Volume 3 - 19
97	03	03	4213	Aircraft Support Equipment	Volume 3 - 29
98	03	03	4217	Advanced Arresting Gear (AAG)	Volume 3 - 83
99	03	03	4226	Meteorological Equipment	Volume 3 - 91
100	03	03	4248	Legacy Airborne MCM	Volume 3 - 99
101	03	03	4250	Common Control System	Volume 3 - 113
102	03	03	4268	Aviation Support Equipment	Volume 3 - 117
103	03	03	4269	UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	Volume 3 - 147

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105	04	03	5227	HARPOON Support Equipment	Volume 4 - 7
106	04	03	5231	Ship Missile Support Equipment	Volume 4 - 11
107	04	03	5253	Tomahawk Support Equipment	Volume 4 - 61
108	04	04	5358	Strategic Missile Systems Equip	Volume 4 - 67
109	04	05	5420	SSN Combat Control Systems	Volume 4 - 97
110	04	05	5429	ASW Support Equipment	Volume 4 - 121
111	04	06	5509	EOD Equipment	Volume 4 - 135
112	04	06	5543	Items Less Than $5 Million	Volume 4 - 147
113	04	07	5530	Anti-ship Missile Decoy System	Volume 4 - 153
114	04	07	5661	Submarine Training Device Mods	Volume 4 - 167
115	04	07	5664	Surface Training Equipment	Volume 4 - 179

Appropriation 1810N: Other Procurement, Navy

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117	05	01	6007	General Purpose Trucks	Volume 5 - 13
118	05	01	6024	Construction & Maint Equip	Volume 5 - 25
119	05	01	6027	Fire Fighting Equipment	Volume 5 - 49
120	05	01	6028	Tactical Vehicles	Volume 5 - 55
121	05	01	6058	Pollution Control Equipment	Volume 5 - 63
122	05	01	6060	Items less than $5 Million	Volume 5 - 67
123	05	01	6075	Physical Security Vehicles	Volume 5 - 99

Appropriation 1810N: Other Procurement, Navy

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125	06	01	7066	First Destination Transportation	Volume 5 - 115
126	06	01	7069	Special Purpose Supply Systems	Volume 5 - 119

Appropriation 1810N: Other Procurement, Navy

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129	07	02	8106	Command Support Equipment	Volume 5 - 161
130	07	02	8109	Medical Support Equipment	Volume 5 - 185
132	07	02	8114	Naval MIP Support Equipment	Volume 5 - 193
133	07	02	8118	Operating Forces Support Equipment	Volume 5 - 201
134	07	02	8120	C4ISR Equipment	Volume 5 - 209
135	07	02	8126	Environmental Support Equipment	Volume 5 - 217
136	07	02	8128	Physical Security Equipment	Volume 5 - 229
137	07	02	8161	Enterprise Information Technology	Volume 5 - 247
141	07	05	8164	Next Generation Enterprise Service	Volume 5 - 259
142	07	05	8645	Cyberspace Activities	Volume 5 - 265

Appropriation 1810N: Other Procurement, Navy

Line #	BA	BSA	Line Item Number	Line Item Title	Page
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AN/SQQ-89 Surf ASW Cmbt Sys	2136	39	02	02	Volume 2 - 11
ASW Support Equipment	5429	110	04	05	Volume 4 - 121
Adv Tact Data Link Sys (ATDLS)	2614	51	02	07	Volume 2 - 231
Advanced Arresting Gear (AAG)	4217	98	03	03	Volume 3 - 83
Afloat ATC Equipment	2830	59	02	09	Volume 2 - 347
Aircraft Support Equipment	4213	97	03	03	Volume 3 - 29
American Forces Radio and TV Service (AFRTS)	2666	56	02	07	Volume 2 - 275
Anti-ship Missile Decoy System	5530	113	04	07	Volume 4 - 153
Ashore ATC Equipment	2820	58	02	09	Volume 2 - 287
Automatic Identification System (AIS)	2361	48	02	05	Volume 2 - 195
Aviation Support Equipment	4268	102	03	03	Volume 3 - 117
C4ISR Equipment	8120	134	07	02	Volume 5 - 209
CANES	2915	66	02	10	Volume 2 - 455
CANES Intell	2925	68	02	10	Volume 2 - 479
CG Modernization	0960	19	01	09	Volume 1 - 423
Chemical Warfare Detectors	0989	23	01	09	Volume 1 - 511

Line Item Title	Line Item Number	Line #	BA	BSA	Page
Coast Guard Equipment	3620	92	02	17	Volume 2 - 693
Command Support Equipment	8106	129	07	02	Volume 5 - 161
Command and Control Switchboard	0925	7	01	09	Volume 1 - 237
Common Control System	4250	101	03	03	Volume 3 - 113
Communications Items under $5M	3057	76	02	11	Volume 2 - 579
Construction & Maint Equip	6024	118	05	01	Volume 5 - 25
Cooperative Engagement Capability	2606	49	02	07	Volume 2 - 199
Cryptologic Communications Equip	3501	84	02	16	Volume 2 - 681
Cyberspace Activities	8645	142	07	05	Volume 5 - 265
DDG 1000 Class Support Equipment	0947	16	01	09	Volume 1 - 393
DDG Mod	0900	5	01	09	Volume 1 - 159
Deep Subm Sys Proj (DSSP) Equip	0955	18	01	09	Volume 1 - 415
Distributed Common Ground System-Navy (DCGS-N)	2914	65	02	10	Volume 2 - 437
Diving and Salvage Equipment	1130	28	01	11	Volume 1 - 565
EMI Control Instrumentation	2970	72	02	10	Volume 2 - 509
EOD Equipment	5509	111	04	06	Volume 4 - 135
Enterprise Information Technology	8161	137	07	02	Volume 5 - 247
Environmental Support Equipment	8126	135	07	02	Volume 5 - 217
Fire Fighting Equipment	6027	119	05	01	Volume 5 - 49
Firefighting Equipment	0910	6	01	09	Volume 1 - 223

Line Item Title	Line Item Number	Line #	BA	BSA	Page
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Fixed Surveillance System	2225	44	02	03	Volume 2 - 111
Gen Purp Elec Test Equip (GPETE)	2940	69	02	10	Volume 2 - 489
General Purpose Trucks	6007	117	05	01	Volume 5 - 13
HARPOON Support Equipment	5227	105	04	03	Volume 4 - 7
ID Systems	2851	60	02	09	Volume 2 - 383
Info Systems Security Program (ISSP)	3415	82	02	15	Volume 2 - 641
Integ Combat System Test Facility	2960	71	02	10	Volume 2 - 505
Items Less Than $5 Million	5543	112	04	06	Volume 4 - 147
Items less than $5 Million	0981	22	01	09	Volume 1 - 477
Items less than $5 Million	2980	73	02	10	Volume 2 - 513
Items less than $5 Million	6060	122	05	01	Volume 5 - 67
Joint Communications Support Element (JCSE)	3302	81	02	14	Volume 2 - 637
Joint Precision Approach and Landing System(JPALS)	2867	61	02	09	Volume 2 - 405
LCAC	0970	20	01	09	Volume 1 - 449
LCC 19/20 Extended Service Life Program	0934	9	01	09	Volume 1 - 295
LCS ASW Mission Modules	1602	33	01	15	Volume 1 - 647
LCS Class Support Equipment	0944	13	01	09	Volume 1 - 339
LCS Common Mission Modules Equipment	1600	31	01	15	Volume 1 - 617
LCS In-Service Modernization	1604	35	01	15	Volume 1 - 669

Line Item Title	Line Item Number	Line #	BA	BSA	Page
LCS MCM Mission Modules	1601	32	01	15	Volume 1 - 633
LCS SUW Mission Modules	1603	34	01	15	Volume 1 - 659
LHA/LHD Midlife	0933	8	01	09	Volume 1 - 245
LPD Class Support Equipment	0946	15	01	09	Volume 1 - 357
LSD Midlife & Modernization	1610	37	01	16	Volume 1 - 697
Legacy Airborne MCM	4248	100	03	03	Volume 3 - 99
MIO Intel Exploitation Team	3417	83	02	15	Volume 2 - 677
Maritime Integrated Broadcast System	2900	63	02	10	Volume 2 - 419
Medical Support Equipment	8109	130	07	02	Volume 5 - 185
Meteorological Equipment	4226	99	03	03	Volume 3 - 91
Minesweeping System Replacement	2622	53	02	07	Volume 2 - 249
Minotaur	3640	95	03	03	Volume 3 - 15
NAVSTAR GPS Receivers (Space)	2657	55	02	07	Volume 2 - 263
Naval MIP Support Equipment	8114	132	07	02	Volume 5 - 193
Naval Mission Planning Systems	2876	62	02	09	Volume 2 - 411
Naval Tact Cmd Supt Sys (NTCSS)	2611	50	02	07	Volume 2 - 221
Navy Command and Control System (NCCS)	2618	52	02	07	Volume 2 - 241
Navy Multiband Terminal (NMT)	3216	80	02	13	Volume 2 - 619
Network Tactical Common Data Link (CDL)	2950	70	02	10	Volume 2 - 495
Next Generation Enterprise Service	8164	141	07	05	Volume 5 - 259

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Operating Forces Support Equipment	8118	133	07	02	Volume 5 - 201
Other Navigation Equipment	0670	3	01	06	Volume 1 - 33
Passenger Carrying Vehicles	6003	116	05	01	Volume 5 - 1
Physical Security Equipment	8128	136	07	02	Volume 5 - 229
Physical Security Vehicles	6075	123	05	01	Volume 5 - 99
Pollution Control Equipment	0935	10	01	09	Volume 1 - 299
Pollution Control Equipment	6058	121	05	01	Volume 5 - 63
RADIAC	2920	67	02	10	Volume 2 - 467
Reactor Components	1020	27	01	10	Volume 1 - 561
Reactor Power Units	1010	26	01	10	Volume 1 - 557
SPQ-9B Radar	2026	38	02	02	Volume 2 - 1
SSN Acoustic Equipment	2150	40	02	02	Volume 2 - 33
SSN Combat Control Systems	5420	109	04	05	Volume 4 - 97
SURTASS	2237	45	02	03	Volume 2 - 115
Satellite Communications Systems	3215	79	02	13	Volume 2 - 601
Shallow Water MCM	2624	54	02	07	Volume 2 - 253
Ship Communications Automation	3050	75	02	11	Volume 2 - 557
Ship Gun Systems Equipment	5111	104	04	02	Volume 4 - 1
Ship Maintenance, Repair and Modernization	1000	25	01	10	Volume 1 - 547

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Shipboard IW Exploit	2360	47	02	05	Volume 2 - 165
Shipboard Tactical Comms	3010	74	02	11	Volume 2 - 545
Small & Medium UUV	1611	36	01	15	Volume 1 - 685
Sonobuoys - All Types	4048	94	03	01	Volume 3 - 1
Spares and Repair Parts	9020	143	08	01	Volume 5 - 273
Special Purpose Supply Systems	7069	126	06	01	Volume 5 - 119
Standard Boats	1210	29	01	12	Volume 1 - 587
Strategic Missile Systems Equip	5358	108	04	04	Volume 4 - 67
Strategic Platform Support Equip	0950	17	01	09	Volume 1 - 407
Strategic Platform Support Equip	2676	57	02	07	Volume 2 - 283
Sub Periscope, Imaging and Supt Equip Prog	0840	4	01	09	Volume 1 - 109
Submarine Acoustic Warfare System	2210	42	02	03	Volume 2 - 81
Submarine Batteries	0945	14	01	09	Volume 1 - 351
Submarine Broadcast Support	3107	77	02	12	Volume 2 - 593
Submarine Communication Equipment	3130	78	02	12	Volume 2 - 597
Submarine Life Support System	0990	24	01	09	Volume 1 - 541
Submarine Support Equipment	0941	11	01	09	Volume 1 - 317
Submarine Training Device Mods	5661	114	04	07	Volume 4 - 167
Supply Equipment	7025	124	06	01	Volume 5 - 103

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Surface Power Equipment	0131	1	01	01	Volume 1 - 1
Surface Ship Torpedo Def (SSTD)	2213	43	02	03	Volume 2 - 103
Surface Training Equipment	5664	115	04	07	Volume 4 - 179
Tactical Vehicles	6028	120	05	01	Volume 5 - 55
Tactical/Mobile C4I Systems	2906	64	02	10	Volume 2 - 423
Tomahawk Support Equipment	5253	107	04	03	Volume 4 - 61
Training Support Equipment	8081	127	07	01	Volume 5 - 123
Training and Education Equipment	8101	128	07	01	Volume 5 - 131
UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	4269	103	03	03	Volume 3 - 147
Undersea Warfare Support Equipment	2176	41	02	02	Volume 2 - 73
Underwater EOD Equipment	0977	21	01	09	Volume 1 - 453
Virginia Class Support Equipment	0942	12	01	09	Volume 1 - 331
Weapons Range Support Equipment	4204	96	03	03	Volume 3 - 19

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Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 1: Sonobuoys	**P-1 Line Item Number / Title:** 4048 / Sonobuoys - All Types

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	2,126.068	313.554	303.493	249.121	0.000	249.121	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	2,126.068	313.554	303.493	249.121	0.000	249.121	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**2,126.068**	**313.554**	**303.493**	**249.121**	**0.000**	**249.121**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Sonobuoys are air launched expendable, electro-mechanical sensors designed to relay underwater sounds associated with ships and submarines to remote processors. Sonobuoys by type are procured annually to maintain the OPNAV Naval Munitions Requirements Process (NMRP). The NMRP includes annual usage requirements for squadron training, readiness and current operations. Sonobuoys currently support the P-3, P-8 and H-60 platforms.

[P5 / Sonobuoys, All Types]: Any increase to sonobuoy unit costs that is greater than inflation is a result of either a decrease in economies of scale or an increase in sonobuoy capability. See P5 footnotes for details.

[P5 / AN/SSQ-36 (BT) QZ001]: The AN/SSQ-36 Bathythermograph (BT) is a bathythermograph sonobuoy used to provide a vertical temperature profile of the ocean with respect to depth. The data is transmitted to aircraft to assist in the selection of hydrophone depths and tactics for localizing and tracking submarines and long-range forecasts of acoustic conditions in the ocean.

[P5 / AN/SSQ-53 (DIFAR) QZ002]: The AN/SSQ-53 Directional Frequency Analysis and Recording (DIFAR) is a passive directional sonobuoy which provides acoustic target localization.

[P5 / AN/SSQ-62 (DICASS) QZ004]: The AN/SSQ-62 Directional Command Active Sonobuoy System (DICASS) is a commandable, active acoustic directional sonobuoy that provides target bearing and range information.

[P5 / AN/SSQ-101 (Multi-static Coherent Receiver) QZ006]: The AN/SSQ-101 Air Deployable Active Receiver (ADAR) is a commandable passive acoustic sonobuoy with a horizontal planar array. It is part of the family of multi-static active sensor systems.

[P5 / AN/SSQ-125 (Multi-static Coherent Source) QZ010]: The AN/SSQ-125 Multi-static Active Coherent (MAC) Source is a commandable coherent active search sensor. It is part of the family of multi-static active sensor systems.

[P5 / SUS MK84 QZ012]: The MK84 Signal Underwater Sound (SUS) device is an expendable, non-explosive, electro-acoustic device which transmits acoustic tones. The MK84 SUS is used for training and exercise signaling to submarines.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 1: Sonobuoys	**P-1 Line Item Number / Title:** 4048 / Sonobuoys - All Types

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	1 / Sonobuoys, All Types	P-5a, P-21			- / 2,126.068	- / 313.554	- / 303.493	- / 249.121	- / 0.000	- / 249.121
P-40	**Total Gross/Weapon System Cost**				**- / 2,126.068**	**- / 313.554**	**- / 303.493**	**- / 249.121**	**- / 0.000**	**- / 249.121**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

The level of sonobuoy procurement funding enables several facets of the Navy's overall Anti-submarine Warfare (ASW) mission readiness. The Air ASW program buys to budget based on actual fleet usage, fleet forecasted usage, and best negotiated pricing across all sonobuoy types. This funding profile does not meet minimum inventory requirements for the entire family of air delivered acoustic sensors within the Future Years Defense Program (FYDP). This is the result of an increase in actual expenditures, budget constraints, and an increase in the Total Munitions Requirement (TMR). The Air ASW community is migrating from a primarily passive to a more capable Multi-static Active Coherent (MAC) wide area search Concept of Operations (CONOPS). While the transition to MAC requires the procurement of more sophisticated sonobuoys, the resulting wide area search capability is more efficient and effective. The MAC capability provides the foundational Air ASW acoustic search capability for the P-8 Poseidon, and increasing the inventory of MAC sonobuoys is required to support the combatant commander's ASW mission execution requirements. This funding profile allows the Navy to prioritize and meet current operational forward presence requirements while building fleet commander deployment readiness levels in the ASW mission area.

NOTES:

1. The AN/SSQ-125 MAC sonobuoy is a commandable coherent active search sensor. In FY20 through FY22, the AN-SSQ-125 MAC sonobuoy begins the gradual transition to a more complex variant, the AN/SSQ-125A. The 125A provides a more efficient and effective wide area search capability, which correlates with the increased unit cost over the transition period.

2. The Congressional Add of $50M in FY21 resulted in increased economies of scale. As of FY21, in preparation of the ERAPSCO JV dissolution, OTA's are being utilized to support Performance Verification & Validation (PV&V) of production sonobuoys. The OTA establishes the required Government qualification testing to verify the vendors' sonobuoy design meets minimum performance specification requirements ensuring production line stability and smooth transition from the JV to multi award contract (MAC). OTAs are included in sonobuoy unit costs.

3. As of FY21 AN/SSQ-101B unit cost increases as a result of a silver shortage at the Defense Logistics Agency (DLA) Precious Metal Recovery Program. Historically, the program procured silver through DLA for the AN/SSQ-101B sonobuoy variant at $3.97 per troy ounce. In FY21, DLA's surplus was exhausted. Due to the silver scarcity, program is procuring silver at market rate $30 per troy ounce. Program is pursuing mitigation strategies with vendors to replace silver requirement with a lithium battery for incorporation into the buoy in FY24.

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1	**P-1 Line Item Number / Title:** 4048 / Sonobuoys - All Types	**Item Number / Title [DODIC]:** 1 / Sonobuoys, All Types
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	2,126.068	313.554	303.493	249.121	0.000	249.121
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	2,126.068	313.554	303.493	249.121	0.000	249.121
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**2,126.068**	**313.554**	**303.493**	**249.121**	**0.000**	**249.121**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - Sonobuoys (Common) Cost																		
Recurring Cost																		
1.1.1) AN/SSQ-36 (BT) QZ001(†) (1)	616.74	29,411	18.139	464.49	7,253	3.369	490.65	6,774	3.324	500.46	7,098	3.552	-	-	-	500.46	7,098	3.552
1.1.2) AN/SSQ-53 (DIFAR) QZ002(†)	769.02	761,870	585.896	791.07	126,858	100.354	823.03	123,384	101.549	839.49	116,200	97.549	-	-	-	839.49	116,200	97.549
1.1.3) AN/SSQ-62 (DICASS) QZ004(†)	1,671.32	103,028	172.193	1,644.00	22,553	37.077	1,707.39	20,475	34.959	1,741.54	20,000	34.831	-	-	-	1,741.54	20,000	34.831
Subtotal: Recurring Cost	-	-	*776.228*	-	-	*140.800*	-	-	*139.832*	-	-	*135.932*	-	-	-	-	-	*135.932*
Subtotal: Hardware - Sonobuoys (Common) Cost	**-**	**-**	***776.228***	**-**	**-**	***140.800***	**-**	**-**	***139.832***	**-**	**-**	***135.932***	**-**	**-**	**-**	**-**	**-**	***135.932***
Hardware - Sonobuoys (Multistatic) Cost																		
Recurring Cost																		
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†) (2)	3,588.51	65,617	235.467	2,962.25	17,123	50.723	3,607.12	18,000	64.928	3,679.26	14,151	52.065	-	-	-	3,679.26	14,151	52.065
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010(†) (3)	5,053.68	63,543	321.126	4,502.98	25,100	113.025	5,511.66	16,202	89.300	8,302.39	6,204	51.508	-	-	-	8,302.39	6,204	51.508
Subtotal: Recurring Cost	-	-	*556.593*	-	-	*163.748*	-	-	*154.228*	-	-	*103.573*	-	-	-	-	-	*103.573*
Subtotal: Hardware - Sonobuoys (Multistatic) Cost	**-**	**-**	***556.593***	**-**	**-**	***163.748***	**-**	**-**	***154.228***	**-**	**-**	***103.573***	**-**	**-**	**-**	**-**	**-**	***103.573***
Hardware - Sonobuoys (Other) Cost																		
Recurring Cost																		

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1	P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types	Item Number / Title [DODIC]: 1 / Sonobuoys, All Types
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
3.1.1) SUS MK84 QZ012	286.50	20,454	5.860	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*5.860*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - Sonobuoys (Other) Cost	**-**	**-**	***5.860***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - Acceptance Testing Cost																		
Recurring Cost																		
4.1.1) Common QZ860	-	-	25.360	-	-	2.411	-	-	2.723	-	-	2.778	-	-	-	-	-	2.778
4.1.2) Multi-static QZ860	-	-	16.164	-	-	2.439	-	-	2.498	-	-	2.545	-	-	-	-	-	2.545
4.1.3) Other QZ860	-	-	0.152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*41.676*	-	-	*4.850*	-	-	*5.221*	-	-	*5.323*	-	-	-	-	-	*5.323*
Subtotal: Hardware - Acceptance Testing Cost	**-**	**-**	***41.676***	**-**	**-**	***4.850***	**-**	**-**	***5.221***	**-**	**-**	***5.323***	**-**	**-**	**-**	**-**	**-**	***5.323***
Hardware - Prior Years Cost																		
Non Recurring Cost																		
5.1.1) Prior Years	-	-	708.043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Non Recurring Cost	-	-	*708.043*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - Prior Years Cost	**-**	**-**	***708.043***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - Production Engineering Cost																		
6.1) Common QZ830	-	-	23.474	-	-	2.079	-	-	2.123	-	-	2.163	-	-	-	-	-	2.163
6.2) Multi-static QZ830	-	-	14.066	-	-	2.077	-	-	2.089	-	-	2.130	-	-	-	-	-	2.130
6.3) Other QZ830	-	-	0.128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Support - Production Engineering Cost	**-**	**-**	***37.668***	**-**	**-**	***4.156***	**-**	**-**	***4.212***	**-**	**-**	***4.293***	**-**	**-**	**-**	**-**	**-**	***4.293***
Gross/Weapon System Cost	**-**	**-**	**2,126.068**	**-**	**-**	**313.554**	**-**	**-**	**303.493**	**-**	**-**	**249.121**	**-**	**-**	**0.000**	**-**	**-**	**249.121**

Remarks:

[Hardware] Actual quantities between the various sonobuoy types may adjust for Fleet requirements. Hardware funds may be realigned to support necessary Engineering Investigations and production Engineering Change Proposals. Any year to year increase to sonobuoy unit costs is a result of either loss of economies of scale or sonobuoy capability enhancements.

[Hardware] Sonobuoys under prior subheads are not included in Prior Years amount.

(†) indicates the presence of a P-5a

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1	**P-1 Line Item Number / Title:** 4048 / Sonobuoys - All Types	**Item Number / Title [DODIC]:** 1 / Sonobuoys, All Types
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Footnotes:

(1) PLEASE NOTE: The Congressional Add of $50M in FY21 resulted in increased economies of scale. As of FY21, in preparation of the ERAPSCO JV dissolution, OTA's are being utilized to support PV&V of production sonobuoys. The OTA establishes the required Government qualification testing to verify the vendors' sonobuoy design meets minimum performance specification requirements ensuring production line stability and smooth transition from the JV to multi award contract (MAC). OTAs are included in sonobuoy unit costs. Increase in SSQ-36 unit cost from FY21 to FY22 is a result of the OTA required for PV&V qualification.

(2) AN/SSQ-101B unit cost increases as a result of a silver shortage at the DLA Precious Metal Recovery Program. Historically, the program procured silver through DLA for the AN/SSQ-101B sonobuoy variant at $3.97 per troy ounce. In FY21, DLA's surplus was exhausted. Due to the silver scarcity, program is procuring silver at market rate $30 per troy ounce. Program is pursuing mitigation strategies to replace silver requirement with a lithium battery for incorporation into the buoy.

(3) AN/SSQ-125 UNIT COSTS: The gradual transition from the AN/SSQ-125 sonobuoy to the more complex variant AN/SSQ-125A, results in increased unit costs in FY21 and FY22. The AN/SSQ-125A is a higher cost sonobuoy with sophisticated MAC technology resulting in wide area search capability required to support the combatant commander's ASW mission execution requirements.

Exhibit P-5a, Procurement History and Planning: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1	P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types	Item Number / Title [DODIC]: 1 / Sonobuoys, All Types

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) AN/SSQ-36 (BT) QZ001		2019	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	2,304	544.72	Y		Aug 2017
1.1.1) AN/SSQ-36 (BT) QZ001	✓	2019	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	677	544.72	Y		Aug 2017
1.1.1) AN/SSQ-36 (BT) QZ001		2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	7,191	464.49	Y		Aug 2017
1.1.1) AN/SSQ-36 (BT) QZ001	✓	2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	62	464.49	Y		Aug 2017
1.1.1) AN/SSQ-36 (BT) QZ001		2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	6,350	490.65	Y		Aug 2017
1.1.1) AN/SSQ-36 (BT) QZ001	✓	2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	424	490.65	Y		Aug 2017
1.1.1) AN/SSQ-36 (BT) QZ001		2022	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2021	Dec 2022	7,098	500.46	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002(†)		2019	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	69,388	832.01	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002(†)	✓	2019	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	18,244	832.01	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002(†)		2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	125,556	791.07	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002(†)	✓	2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	1,302	791.07	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002(†)		2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	119,582	823.03	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002(†)	✓	2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	3,802	823.03	Y		Aug 2017
1.1.2) AN/SSQ-53 (DIFAR) QZ002(†)		2022	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2021	Dec 2022	116,200	839.49	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004(†)		2019	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	23,051	1,605.51	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004(†)	✓	2019	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	1,449	1,605.51	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004(†)		2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	22,457	1,644.00	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004(†)	✓	2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	96	1,644.00	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004(†)		2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	17,051	1,707.39	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004(†)	✓	2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	3,424	1,707.39	Y		Aug 2017
1.1.3) AN/SSQ-62 (DICASS) QZ004(†)		2022	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2021	Dec 2022	20,000	1,741.54	Y		Aug 2017

Exhibit P-5a, Procurement History and Planning: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1	P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types	Item Number / Title [DODIC]: 1 / Sonobuoys, All Types

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†)		2019	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	14,414	3,043.05	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†)	✓	2019	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Jul 2019	Jul 2020	76	3,043.05	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†)		2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	16,887	2,962.25	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†)	✓	2020	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Mar 2020	Mar 2021	236	2,962.25	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†)		2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	15,974	3,607.12	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†)	✓	2021	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2020	Dec 2021	2,026	3,607.12	Y		Aug 2017
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006(†)		2022	ERAPSCO / Columbia City IN	SS / IDIQ	NAVAIR	Dec 2021	Dec 2022	14,151	3,679.26	Y		Aug 2017
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010(†)		2019	Various (4) / Various	C / FFP	NAVAIR	Dec 2018	Dec 2019	9,479	7,380.22	Y		Aug 2017
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010(†)	✓	2019	Various (4) / Various	C / FFP	NAVAIR	Dec 2018	Dec 2019	55	7,380.22	Y		Aug 2017
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010(†)		2020	Various (4) / Various	C / FFP	NAVAIR	Jul 2020	Jul 2021	24,881	4,502.98	Y		Aug 2019
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010(†)	✓	2020	Various (4) / Various	C / FFP	NAVAIR	Jul 2020	Jul 2021	219	4,502.98	Y		Aug 2019
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010(†)		2021	Various (4) / Various	C / FFP	NAVAIR	Dec 2020	Dec 2021	14,153	5,511.66	Y		Aug 2017
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010(†)	✓	2021	Various (4) / Various	C / FFP	NAVAIR	Dec 2020	Dec 2021	2,049	5,511.66	Y		Aug 2017
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010(†)		2022	Various (4) / Various	C / FFP	NAVAIR	Dec 2021	Dec 2022	6,204	8,302.39	Y		Aug 2017

(†) indicates the presence of a P-21

Footnotes:

(4) The AN/SSQ-125A sonobuoy contract vendors are ERAPSCO, Columbia City IN and Lockheed Martin, Manassas VA.

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1	P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types	Item Number / Title [DODIC]: 1 / Sonobuoys, All Types

Cost Elements (Units in Thousands)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019												Calendar Year 2020													
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) AN/SSQ-53 (DIFAR) QZ002																															
Prior Years Deliveries: 674238																															
	1	2019	NAVY	69.388	.000	69.388										A -	-	-	-	-	-	-	-	-	-	-	-	3.053	8.000	8.300	50.035
✓	1	2019	NAVY	18.244	.000	18.244										A -	-	-	-	-	-	-	-	-	-	-	-	1.000	1.500	2.250	13.494
	1	2020	NAVY	125.556	.000	125.556																		A -	-	-	-	-	-	-	125.556
✓	1	2020	NAVY	1.302	.000	1.302																		A -	-	-	-	-	-	-	1.302
	1	2021	NAVY	119.582	.000	119.582																									119.582
✓	1	2021	NAVY	3.802	.000	3.802																									3.802
	1	2022	NAVY	116.200	.000	116.200																									116.200
1.1.3) AN/SSQ-62 (DICASS) QZ004																															
Prior Years Deliveries: 78528																															
	2	2019	NAVY	23.051	.000	23.051										A -	-	-	-	-	-	-	-	-	-	-	-	2.563	2.561	2.561	15.366
✓	2	2019	NAVY	1.449	.000	1.449										A -	-	-	-	-	-	-	-	-	-	-	-	.161	.161	.161	.966
	2	2020	NAVY	22.457	.000	22.457																		A -	-	-	-	-	-	-	22.457
✓	2	2020	NAVY	.096	.000	.096																		A -	-	-	-	-	-	-	.096
	2	2021	NAVY	17.051	.000	17.051																									17.051
✓	2	2021	NAVY	3.424	.000	3.424																									3.424
	2	2022	NAVY	20.000	.000	20.000																									20.000
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006 (2)																															
Prior Years Deliveries: 51127																															
	3	2019	NAVY	14.414	.000	14.414										A -	-	-	-	-	-	-	-	-	-	-	-	1.614	1.600	1.600	9.600
✓	3	2019	NAVY	.076	.000	.076										A -	-	-	-	-	-	-	-	-	-	-	-	.009	.009	.009	.049
	3	2020	NAVY	16.887	.000	16.887																		A -	-	-	-	-	-	-	16.887
✓	3	2020	NAVY	.236	.000	.236																		A -	-	-	-	-	-	-	.236
	3	2021	NAVY	15.974	.000	15.974																									15.974
✓	3	2021	NAVY	2.026	.000	2.026																									2.026
	3	2022	NAVY	14.151	.000	14.151																									14.151
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 (3)																															
Prior Years Deliveries: 54009																															
	4	2019	NAVY	9.479	.000	9.479			A -	-	-	-	-	-	-	-	-	-	-	-	-	.600	.875	1.000	1.500	1.500	1.500	1.000	.875	.629		.000
✓	4	2019	NAVY	.055	.000	.055			A -	-	-	-	-	-	-	-	-	-	-	-	-	.005	.006	.006	.007	.007	.007	.006	.006	.005		.000
	4	2020	NAVY	24.881	.000	24.881																						A -	-	-	24.881
✓	4	2020	NAVY	.219	.000	.219																						A -	-	-	.219
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1	**P-1 Line Item Number / Title:** 4048 / Sonobuoys - All Types	**Item Number / Title [DODIC]:** 1 / Sonobuoys, All Types

Cost Elements (Units in Thousands)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
										Calendar Year 2019														Calendar Year 2020									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
	4	2021	NAVY	14.153	.000	14.153																									14.153
✓	4	2021	NAVY	2.049	.000	2.049																									2.049
	4	2022	NAVY	6.204	.000	6.204																									6.204
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1	P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types	Item Number / Title [DODIC]: 1 / Sonobuoys, All Types

Cost Elements (Units in Thousands)							Fiscal Year 2021															Fiscal Year 2022										BALANCE
							Calendar Year 2021															Calendar Year 2022										
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) AN/SSQ-53 (DIFAR) QZ002																															
Prior Years Deliveries: 674238																															
	1	2019	NAVY	69.388	19.353	50.035	8.900	9.000	8.900	8.300	8.000	6.935																			.000
✓	1	2019	NAVY	18.244	4.750	13.494	3.250	3.250	3.250	2.000	1.500	.244																			.000
	1	2020	NAVY	125.556	.000	125.556	-	-	-	-	-	12.500	13.000	14.000	15.000	15.000	15.000	14.500	14.000	12.556											.000
✓	1	2020	NAVY	1.302	.000	1.302	-	-	-	-	-	.100	.150	.150	.175	.175	.175	.150	.150	.077											.000
	1	2021	NAVY	119.582	.000	119.582			A -	-	-	-	-	-	-	-	-	-	-	-	11.582	13.500	13.500	13.500	13.500	13.500	13.500	13.500	13.500		.000
✓	1	2021	NAVY	3.802	.000	3.802			A -	-	-	-	-	-	-	-	-	-	-	-	.350	.400	.400	.500	.500	.500	.400	.400	.352		.000
	1	2022	NAVY	116.200	.000	116.200															A -	-	-	-	-	-	-	-	-	-	116.200
1.1.3) AN/SSQ-62 (DICASS) QZ004																															
Prior Years Deliveries: 78528																															
	2	2019	NAVY	23.051	7.685	15.366	2.561	2.561	2.561	2.561	2.561	2.561																			.000
✓	2	2019	NAVY	1.449	.483	.966	.161	.161	.161	.161	.161	.161																			.000
	2	2020	NAVY	22.457	.000	22.457	-	-	-	-	-	2.300	2.500	2.500	2.600	2.600	2.600	2.500	2.500	2.357											.000
✓	2	2020	NAVY	.096	.000	.096	-	-	-	-	-	.010	.010	.010	.012	.012	.012	.010	.010	.010											.000
	2	2021	NAVY	17.051	.000	17.051			A -	-	-	-	-	-	-	-	-	-	-	-	1.889	1.889	1.895	1.900	1.900	1.900	1.900	1.888	1.890		.000
✓	2	2021	NAVY	3.424	.000	3.424			A -	-	-	-	-	-	-	-	-	-	-	-	.320	.350	.350	.450	.450	.450	.350	.350	.354		.000
	2	2022	NAVY	20.000	.000	20.000															A -	-	-	-	-	-	-	-	-	-	20.000
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006 (2)																															
Prior Years Deliveries: 51127																															
	3	2019	NAVY	14.414	4.814	9.600	1.600	1.600	1.600	1.600	1.600	1.600																			.000
✓	3	2019	NAVY	.076	.027	.049	.009	.008	.008	.008	.008	.008																			.000
	3	2020	NAVY	16.887	.000	16.887	-	-	-	-	-	.550	1.400	2.000	3.000	3.000	3.000	2.000	1.400	.537											.000
✓	3	2020	NAVY	.236	.000	.236	-	-	-	-	-	.025	.025	.025	.030	.030	.030	.025	.025	.021											.000
	3	2021	NAVY	15.974	.000	15.974			A -	-	-	-	-	-	-	-	-	-	-	-	1.200	1.200	2.000	2.300	2.300	2.200	2.000	1.600	1.174		.000
✓	3	2021	NAVY	2.026	.000	2.026			A -	-	-	-	-	-	-	-	-	-	-	-	.100	.200	.250	.300	.300	.300	.250	.200	.126		.000
	3	2022	NAVY	14.151	.000	14.151															A -	-	-	-	-	-	-	-	-	-	14.151
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 (3)																															
Prior Years Deliveries: 54009																															
	4	2019	NAVY	9.479	9.479	.000																									.000
✓	4	2019	NAVY	.055	.055	.000																									.000
	4	2020	NAVY	24.881	.000	24.881	-	-	-	-	-	-	-	-	-	2.000	2.600	2.600	3.500	3.500	3.500	2.600	2.600	1.981							.000
✓	4	2020	NAVY	.219	.000	.219	-	-	-	-	-	-	-	-	-	.010	.025	.030	.030	.030	.030	.030	.025	.009							.000
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1	**P-1 Line Item Number / Title:** 4048 / Sonobuoys - All Types	**Item Number / Title [DODIC]:** 1 / Sonobuoys, All Types

Cost Elements (Units in Thousands)							Fiscal Year 2021												Fiscal Year 2022											BALANCE
										Calendar Year 2021														Calendar Year 2022									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
	4	2021	NAVY	14.153	.000	14.153			A -	-	-	-	-	-	-	-	-	-	-	-	.600	1.800	1.000	2.500	2.500	2.500	1.100	1.100	1.053		.000
✓	4	2021	NAVY	2.049	.000	2.049			A -	-	-	-	-	-	-	-	-	-	-	-	.150	.200	.260	.275	.275	.275	.260	.200	.154		.000
	4	2022	NAVY	6.204	.000	6.204															A -	-	-	-	-	-	-	-	-	-	6.204
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1	P-1 Line Item Number / Title: 4048 / Sonobuoys - All Types	Item Number / Title [DODIC]: 1 / Sonobuoys, All Types

Cost Elements (Units in Thousands)							Fiscal Year 2023												Fiscal Year 2024												BALANCE
							Calendar Year 2023												Calendar Year 2024													
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2022	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) AN/SSQ-53 (DIFAR) QZ002																															
Prior Years Deliveries: 674238																															
	1	2019	NAVY	69.388	69.388	.000																									.000
✓	1	2019	NAVY	18.244	18.244	.000																									.000
	1	2020	NAVY	125.556	125.556	.000																									.000
✓	1	2020	NAVY	1.302	1.302	.000																									.000
	1	2021	NAVY	119.582	119.582	.000																									.000
✓	1	2021	NAVY	3.802	3.802	.000																									.000
	1	2022	NAVY	116.200	.000	116.200	-	-	12.200	13.000	13.000	13.000	13.000	13.000	13.000	13.000	13.000														.000
1.1.3) AN/SSQ-62 (DICASS) QZ004																															
Prior Years Deliveries: 78528																															
	2	2019	NAVY	23.051	23.051	.000																									.000
✓	2	2019	NAVY	1.449	1.449	.000																									.000
	2	2020	NAVY	22.457	22.457	.000																									.000
✓	2	2020	NAVY	.096	.096	.000																									.000
	2	2021	NAVY	17.051	17.051	.000																									.000
✓	2	2021	NAVY	3.424	3.424	.000																									.000
	2	2022	NAVY	20.000	.000	20.000	-	-	2.000	1.250	2.200	3.000	3.000	3.000	2.200	2.000	1.350														.000
2.1.1) AN/SSQ-101 (Multi-static Coherent Receiver) QZ006 (2)																															
Prior Years Deliveries: 51127																															
	3	2019	NAVY	14.414	14.414	.000																									.000
✓	3	2019	NAVY	.076	.076	.000																									.000
	3	2020	NAVY	16.887	16.887	.000																									.000
✓	3	2020	NAVY	.236	.236	.000																									.000
	3	2021	NAVY	15.974	15.974	.000																									.000
✓	3	2021	NAVY	2.026	2.026	.000																									.000
	3	2022	NAVY	14.151	.000	14.151	-	-	.750	1.000	1.500	2.200	2.200	2.000	2.000	1.300	1.201														.000
2.1.2) AN/SSQ-125 (Multi-static Coherent Source) QZ010 (3)																															
Prior Years Deliveries: 54009																															
	4	2019	NAVY	9.479	9.479	.000																									.000
✓	4	2019	NAVY	.055	.055	.000																									.000
	4	2020	NAVY	24.881	24.881	.000																									.000
✓	4	2020	NAVY	.219	.219	.000																									.000
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1	**P-1 Line Item Number / Title:** 4048 / Sonobuoys - All Types	**Item Number / Title [DODIC]:** 1 / Sonobuoys, All Types

Cost Elements (Units in Thousands)							Fiscal Year 2023												Fiscal Year 2024											BALANCE
										Calendar Year 2023														Calendar Year 2024								
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2022	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
	4	2021	NAVY	14.153	14.153	.000																								.000
✓	4	2021	NAVY	2.049	2.049	.000																								.000
	4	2022	NAVY	6.204	.000	6.204	-	-	.600	.700	.750	.750	.700	.700	.700	.700	.604													.000
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 1	**P-1 Line Item Number / Title:** 4048 / Sonobuoys - All Types	**Item Number / Title [DODIC]:** 1 / Sonobuoys, All Types

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2022	1-8-5 For 2022	MAX For 2022	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	ERAPSCO - Columbia City IN	40,000	70,000	137,000	24	3	12	15	0	0	0	0
2	ERAPSCO - Columbia City IN	6,000	7,500	24,000	24	3	12	15	0	0	0	0
3	ERAPSCO - Columbia City IN	4,000	15,000	18,000	24	5	12	17	0	0	0	0
4	Various [4] - Various	1,048	8,400	36,000	24	3	12	15	0	0	0	0

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:
[4] The AN/SSQ-125A sonobuoy contract vendors are ERAPSCO, Columbia City IN and Lockheed Martin, Manassas VA.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 3640 / Minotaur

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0305241N	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	5.000	5.077	4.963	0.000	4.963	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	5.000	5.077	4.963	0.000	4.963	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**5.000**	**5.077**	**4.963**	**0.000**	**4.963**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Minotaur Family of Services (MFoS) OPN provides interoperable systems including: 1) Mission Management System (MMS) (sensor calibration/control), 2) Grid (networking services), 3) Reach (access to classified national technical means), and 4) Web (cloud computing services) to ensure correlation and fusion of tactical mission data products are provided to Combatant Commanders (COCOMs), Fleet Commanders, and Tactical Commanders, and 5) integration into Digital Warfighting Platform (DWP), in addition to leveraging and scaling the use of Automated Test and Re-Test (ATRT) technologies, and Open Systems Approaches (OSA). MFoS enhances Intelligence, Surveillance, Reconnaissance and Targeting (ISR&T) for all warfare pillars. MFoS provides basis for Battlespace Awareness (BA) tactical decision aids, intelligence data distribution, and battle-management coordination with improved decisional agility. Funding provides Technical Data Packages supporting ISR&T capabilities, to include Tasking, Collection, Processing, Exploitation, and Dissemination (TCPED) aboard U.S. Navy Ships, submarines, and surface system's servers to include both Ground Support Stations and Command and Control (C2) Nodes (afloat and ashore). Funding provides for an increase in ISR&T/TCPED capabilities, reduced operator workload, and deployment of a common system infrastructure across the Fleet as directed by the Chief of Naval Operations. The effort includes delivery of shore (i.e. Watch Floors) and ship-based servers, which integrates MFoS with existing Carrier Strike Group and Expeditionary Strike Group, providing Fleet Commanders access to National Technical Means (NTM), Data Storage, Data Analytics, MAVEN, and GUNSS, via B/LOS IP based networks to accomplish Distributed Maritime Operations (DMO), and Littoral Operations in Contested Environment (LOCE).

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 3640 / Minotaur

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0305241N	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	1 / Minotaur				- / 0.000	- / 5.000	- / 5.077	- / 4.963	- / 0.000	- / 4.963
P-40	**Total Gross/Weapon System Cost**				**- / 0.000**	**- / 5.000**	**- / 5.077**	**- / 4.963**	**- / 0.000**	**- / 4.963**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
FY2022 Minotaur OPN funding provides analysis, Non-recurring Engineering (NRE), integration, modernization, test, procurement, production and delivery of Minotaur Family of Services (MFoS) Special Mission Equipment (SME/systems), installed on ship and shore-based server infrastructure, production software releases, and obsolescence upgrades to pace the threat. In addition, funding provides infrastructure support and surface/shore fielding of MFoS products that include MMS, Grid, Reach, and Web applications for Distributed Maritime Operations (DMO), Littoral Operations in Contested Environment (LOCE), and Digital Warfare Platform (DWP).

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 3640 / Minotaur	**Item Number / Title [DODIC]:** 1 / Minotaur
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	5.000	5.077	4.963	0.000	4.963
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	5.000	5.077	4.963	0.000	4.963
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**5.000**	**5.077**	**4.963**	**0.000**	**4.963**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware Cost																		
Recurring Cost																		
1.1.1) Ship-Based	-	-	-	-	-	2.601	-	-	2.639	-	-	1.591	-	-	-	-	-	1.591
1.1.2) Shore-Based	-	-	-	-	-	0.867	-	-	0.875	-	-	1.779	-	-	-	-	-	1.779
Subtotal: Recurring Cost	-	-	-	-	-	*3.468*	-	-	*3.514*	-	-	*3.370*	-	-	-	-	-	*3.370*
Subtotal: Hardware Cost	**-**	**-**	**-**	**-**	**-**	***3.468***	**-**	**-**	***3.514***	**-**	**-**	***3.370***	**-**	**-**	**-**	**-**	**-**	***3.370***
Support Cost																		
2.1) Data	-	-	-	-	-	0.200	-	-	0.204	-	-	0.208	-	-	-	-	-	0.208
2.2) Training Equipment	-	-	-	-	-	0.500	-	-	0.510	-	-	0.520	-	-	-	-	-	0.520
2.3) Support Equipment	-	-	-	-	-	0.525	-	-	0.536	-	-	0.546	-	-	-	-	-	0.546
2.4) ILS	-	-	-	-	-	0.150	-	-	0.153	-	-	0.156	-	-	-	-	-	0.156
2.5) Other Support	-	-	-	-	-	0.157	-	-	0.160	-	-	0.163	-	-	-	-	-	0.163
Subtotal: Support Cost	**-**	**-**	**-**	**-**	**-**	***1.532***	**-**	**-**	***1.563***	**-**	**-**	***1.593***	**-**	**-**	**-**	**-**	**-**	***1.593***
Gross/Weapon System Cost	**-**	**-**	**0.000**	**-**	**-**	**5.000**	**-**	**-**	**5.077**	**-**	**-**	**4.963**	**-**	**-**	**0.000**	**-**	**-**	**4.963**

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Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4204 / Weapons Range Support Equipment

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	803.332	101.793	85.469	98.898	0.000	98.898	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	803.332	101.793	85.469	98.898	0.000	98.898	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**803.332**	**101.793**	**85.469**	**98.898**	**0.000**	**98.898**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	3.480	1.068	4.545	-	4.545	-	-	-	-	-	-
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

This budget line item provides the resources to implement the Navy Fleet Training Range (FTR) Instrumentation Program Plan. These FTRs provide the primary means of fleet combat readiness training. The plan addresses the following major procurement areas: Electronic Warfare (EW) simulators, Systems Replacement and Modernization (SRAM), and generic systems such as range computer systems, simulation, surveillance systems, Aerial Targets Range Support equipment includes Moving Land Targets (MLT) and Target Threat Simulation Program (TTSP) equipment; MLT includes vehicles, vehicle components, and Engineering Change Proposals to upgrade hardware; TTSP equipment includes EW & Threat Payload simulations, electronic countermeasures equipment and active emitter augmentation equipment, Tactical Combat Training System (TCTS), Large Area Tracking Range (LATR), Undersea Warfare Training Range/ Pacific Fleet Portable Antisubmarine Warfare (ASW) Range, and range infrastructure necessary to enable Live Virtual Constructive (LVC) training capability. The integral parts of these major range programs include but are not limited to the following: voice communications, weapons scoring systems, display consoles, radars, tracking subsystems, control/ computation subsystems, display/ debriefing subsystems, processors, HF/ VHF/ UHF receivers, transmitters/ transceivers, multiplexers, intercom circuits, encoding devices, frequency interface control systems, peculiar support equipment, and other specialized equipment.

[P5 / SC004 SRAM - Systems Replacement and Modernization]: The SRAM program provides for the procurement of numerous non-recurring range equipment replacement and modernization efforts that are needed at all Navy training ranges. SRAM procurements replace and modernize economically unmaintainable systems and equipment in order to increase range efficiency. Funding for installation of minor equipment is required in all years for all ranges. Sample procurements include antenna replacement, datalink replacement, electrical generators, and range safety lighting equipment.

[P5 / SC012 OS - Ocean Systems]: Funds the procurement and upgrade of fixed underwater training ranges at Pacific Missile Range Facility (PMRF), Barking Sands, HI and Southern California ASW Range (SOAR), CA, as well as portable underwater range systems supporting Forward Deployed Naval Forces (FDNF) in the Pacific. Upgrades include cyber security enhancements, increased range accuracy, and splash detection capabilities. The underwater ranges are used to provide individual and unit level training for basic antisubmarine warfare (ASW) skills. Large exercises such as Composite Training Unit Exercises (COMTUEX), Fleet Exercises (FLEETEX), and Joint Task Force Exercises (JTFX) are conducted in the vicinity of the fixed underwater training ranges. Items procured under this cost element include hydrophones, undersea cable, and shore system electronics. Funded programs include Portable Undersea Training Range (PUTR), Barking Sands Tactical Underwater Range (BARSTUR) refurbishment, and West Coast Undersea Warfare Training Range (WC USWTR).

[P5 / SC161 OS - East Coast USWTR]: The purpose of the East Coast USWTR is to establish a shallow-water training range capability on the East Coast. The primary USWTR mission will be to support Fleet readiness through training and tactical development of submarine, surface ship, and aircraft undersea warfare (USW), surface warfare (SUW), and mine warfare (MIW). Secondary missions will include training in shallow water, regional conflict operations involving the naval special warfare (NSW), electronic warfare (EW), and amphibious warfare (AMW) mission/ operational capability areas. Additionally, joint mission areas that may be supported include joint littoral warfare and joint surveillance and warning. Previously subsumed within Ocean Systems, East Coast USWTR has been broken out separately in accordance

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	P-1 Line Item Number / Title: 4204 / Weapons Range Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

with the FY 2007 Defense Appropriations Act. Items procured under this cost element include hydrophones, undersea cable, and shore system electronics for East Coast USWTR. End result is a single in-water training range.

[P5 / SC034 LATR Shipboard Rotary Technology Upgrade]: The Large Area Tracking Range (LATR) Shipboard and Rotary Wing Technology Upgrade (LSRTU) will replace obsolete components in the legacy shipboard and rotary wing tracking instrumentation and will deliver enhanced Beyond Line of Sight (BLOS) tracking capability for Large Force Exercise support.

[P5 / SC132 LATR Navigation Technology Refresh]: Produce and field a Navigation Technology Refresh for Large Area Tracking Range (LATR) Airborne Instrumentation Package-Fixed Wing (AIP-FW) pods to continue training instrumentation support for Large Force Exercises such as COMTUEX and JTFEX. The current AIP-FW pods exhibit tracking anomalies cause by internal navigation system degradation. These pods have been deployed since 1996 and many flight hours have accumulated resulting in stress on the aging internal components. LATR tracks and integrates participating surface and air platforms into an overall training range display for mission feedback. LATR Navigation Technology Refresh will keep LATR operational through the projected sunset date of FY 2030.

[P5 / SC158 TCTS Ground Subsystem]: The Tactical Combat Training System (TCTS) will procure fixed, transportable, and mobile range instrumentation equipment for both shore-based (aircrew training) and deployable (ship/sub/ aircrew training) applications. TCTS instrumentation will transmit exercise scenarios; simulate/stimulate all exercise participants sensors/weapons with the exercise scenario; track all exercise participants and events, e.g., weapons engagements; and provide accurate, realistic, and timely feedback. TCTS is building on Technology developed for existing tactical training range systems. TCTS consists of airborne instrumentation called Participant Subsystems and Ground Subsystems. Increment I systems have been procured and fielded. Procurements for Increment II systems with encrypted communication capability began in FY21.

[P5 / SC140 TCTS Remote Range Unit]: The Tactical Combat Training System (TCTS) will procure fixed, transportable, and mobile range instrumentation equipment for both shore-based (aircrew training) and deployable (ship/sub/ aircrew training) applications. TCTS instrumentation will transmit exercise scenarios; simulate/stimulate all exercise participants sensors/weapons with the exercise scenario; track all exercise participants and events, e.g., weapons engagements; and provide accurate, realistic, and timely feedback. TCTS is building on Technology developed for existing tactical training range systems. TCTS consists of airborne instrumentation called Participant Subsystems and Ground Subsystems. Increment I systems have been procured and fielded. Procurements for Increment II systems with encrypted communication capability began in FY21.

[P5 / SC040 TCTS Shipboard Ground Subsystem]: The Tactical Combat Training System (TCTS) will procure fixed, transportable, and mobile range instrumentation equipment for both shore-based (aircrew training) and deployable (ship/sub/ aircrew training) applications. TCTS instrumentation will transmit exercise scenarios; simulate/stimulate all exercise participants sensors/weapons with the exercise scenario; track all exercise participants and events, e.g., weapons engagements; and provide accurate, realistic, and timely feedback. TCTS is building on Technology developed for existing tactical training range systems. TCTS consists of airborne instrumentation called Participant Subsystems and Ground Subsystems. Increment I systems have been procured and fielded. Procurements for Increment II systems with encrypted communication capability will begin in FY26.

[P5 / SC105 EW - Threat Presentation]: Threat Presentation includes all the necessary components and elements associated with presenting friendly training event participants with an opposing force (OPFOR) operating environment that replicates the expected enemy order of battle. The capability of a range to recreate any Electronic Combat electronic order of battle requires a range to simulate or emulate basic elements of Electronic Combat such as search, acquisition and tracking radars, anti-aircraft artillery (AAA) systems, surface-to-air missile (SAM) systems, infrared (IR) systems, jammers, coastal threats, airborne simulators, and information warfare/ command and control systems. Individual pieces procured vary from year to year.

[P5 / SC151 MLT Hardware]: The Moving Land Target (MLT) Program will provide Moving Land Target vehicles to train aircrews in the demands of Close Air Support (CAS), Time Sensitive Targeting (TST), Target Identification, and Forward Air Controller (FAC) procedures within a Network Centric Warfighting force. MLT provides aircrews with threat representative targets that provide infrared reactivity, mobility, and realistic radar cross-section targets to meet their combat training and testing needs. The MLT program procures Moving Land Target vehicles, vehicle components, and Engineering Change Proposals to upgrade hardware.

[P5 / SC106 TTSP]: The Target Threat Simulation Program (TTSP) replicates various threats dependent upon the objectives of the test and evaluation event(s). TTSP procures the payload equipment required to electronically enhance aerial/surface targets to provide threat representative Radio Frequency signatures, specifically the Electronic Attack and Threat Radar Emissions (Active Emitters). TTSP accomplishes this through a collection of modules which are integrated into the target in various configurations, providing the ability to simulate the RF environment.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4204 / Weapons Range Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

[P5 / SC711 LVC Range Integration]: Funds Range Live Virtual Constructive (LVC) integration allowing real-time telemetry to be received from new aircraft reaching the fleet. Establish persistent integrated training between AEGIS, CVW, Maritime & UAS training assets by enabling LVC capability with live aircraft on Tactical Training Range (TTR) sites. Effort will modify range infrastructure at multiple range sites to provide secure network connectivity to provide robust integrated training capability. Allows range communications, networking, and mission brief, display, and debrief capabilities at multiple levels of security.

[P5 / SC158 - TCTS Block Upgrade]: The Tactical Combat Training System (TCTS) will procure fixed range instrumentation equipment for both shore-based (aircrew training) and deployable (ship/sub/ aircrew training) applications. TCTS instrumentation will transmit exercise scenarios; simulate/stimulate all exercise participants sensors/weapons with the exercise scenario; track all exercise participants and events, e.g., weapons engagements; and provide accurate, realistic, and timely feedback. TCTS is building on technology developed for existing tactical training range systems. TCTS consists of airborne instrumentation called Participant Subsystems and Ground Subsystems. Increment 1 systems have been procured and fielded. Annual block upgrade software packages will be released to fielded Increment 1 systems to correct system deficiencies. These block upgrades were previously budgeted under SC920, TCTS Non-Recurring. Software block upgrades will deliver the capability to integrate and merge F-35 range participant information with TCTS time-space position information (TSPI) at TCTS ground systems for training exercise display and debrief at multiple Tactical Training Range (TTR) sites.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4204 / Weapons Range Support Equipment
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A / **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Exhibits Schedule					Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	1 / Weapons Range Support Equipment	P-5a			- / 803.332	- / 101.793	- / 85.469	- / 98.898	- / 0.000	- / 98.898
P-40	**Total Gross/Weapon System Cost**				**- / 803.332**	**- / 101.793**	**- / 85.469**	**- / 98.898**	**- / 0.000**	**- / 98.898**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
The increase in Systems Replacement and Modernization (SRAM) in FY 2022 funds fleet priorities for modernization efforts at Navy training ranges in support of fleet training wholeness.

The increase in Ocean Systems in FY 2022 funds the continuation of the effort to replace the in-water sensor system and shore electronics for Anti-Submarine Warfare (ASW) training ranges at Pacific Missile Range Facility (PMRF), HI, including the Barking Sands Tactical Underwater Range (BARSTUR) and Barking Sands Underwater Range Expansion (BSURE) operating areas. The effort will be a time-phased procurement exception to the full funding policy. Hardware buys will vary in cost from year to year to meet the Fleet's required date for Full Operational Capability (FOC). FY 2022 procurements include funds for Ocean Sensor Subsystem (OSS) and Shore Electronic Subsystem (SES) Production Engineering Verification Testing and a Technical Review under the time-phased procurement contract. Additionally, FY 2022 procures long lead items to support the time phased procurement schedule, including the Internode Cable. FY2022 also funds the labor support for East Coast USWTR reaching Full Operational Capability (FOC) in FY 2022 and support for the delivery of the Portable Undersea Training Range (PUTR) system in FY 2023.

Funds in FY 2022 will continue Low Rate Initial Production of Tactical Combat Training System Increment II (TCTS II). The increase in Tactical Combat Training System (TCTS) Increment II in FY 2022 funds the procurement of one Ground Subsystems (GS) and nine Remote Range Units (RRU) to provide encryption capability for Fleet training exercises. FY 2022 will provide the first full year of production and engineering support for TCTS II.

Electronic Warfare (EW) Threat Presentation funding fluctuates from year to year reflecting Navy prioritization of various Electronic Warfare (EW) Threat Presentation devices for use at multiple Tactical Training Range (TTR) sites, including Fallon, NV; Yuma, AZ; Southern California Offshore Range (SCORE), CA; Mid-Atlantic Electronic Warfare Range (MAEWR), NC. FY 2022 Fleet Training Wholeness Initiative procures additional Encrypted Range Radios and additional Anti-Ship Cruise Missile (ASCM) Digital Radio Frequency Memory (DRFM) modules for use at the East and West Coast Opposition Force (OPFOR) Training areas, one Spoon Rest foreign Military Equipment (FME) system modernization at Fallon site, and also funds Fleet Training Wholeness Initiative to complete specific number of electronic warfare system tech refreshes to improve availability and maintainability at Fleet range sites that include EW Opposition Force (OPFOR) training capabilities and connect those systems to the Navy Enterprise Tactical Training Network (NETTN).

Funds in FY 2022 for Live-Virtual-Constructive (LVC) will provide equipment for initial distributed capability in Guam and provide additional capability at the Whidbey Island Tactical Training Range (TTR) with voice communication and datalink equipment in support of Live Virtual Constructive (LVC) capabilities. Install distributed network capabilities at various West Coast TTR's, according to Fleet priorities, in support of LVC capabilities.

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4204 / Weapons Range Support Equipment	**Item Number / Title [DODIC]:** 1 / Weapons Range Support Equipment
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	803.332	101.793	85.469	98.898	0.000	98.898
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	803.332	101.793	85.469	98.898	0.000	98.898
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**803.332**	**101.793**	**85.469**	**98.898**	**0.000**	**98.898**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	3.480	1.068	4.545	-	4.545
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - Systems Replacement and Modernization Cost																		
Recurring Cost																		
1.1.1) SC004 SRAM - Systems Replacement and Modernization [1]	-	-	188.663	-	-	9.759	-	-	8.568	-	-	9.231	-	-	-	-	-	9.231
Subtotal: Recurring Cost	-	-	*188.663*	-	-	*9.759*	-	-	*8.568*	-	-	*9.231*	-	-	-	-	-	*9.231*
Subtotal: Hardware - Systems Replacement and Modernization Cost	**-**	**-**	***188.663***	**-**	**-**	***9.759***	**-**	**-**	***8.568***	**-**	**-**	***9.231***	**-**	**-**	**-**	**-**	**-**	***9.231***
Hardware - Ocean Systems Cost																		
Recurring Cost																		
2.1.1) SC012 OS - Ocean Systems [2]	-	-	63.370	-	-	10.278	-	-	12.653	-	-	33.566	-	-	-	-	-	33.566
2.1.2) SC161 OS - East Coast USWTR	-	-	159.259	-	-	17.208	-	-	2.117	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*222.629*	-	-	*27.486*	-	-	*14.770*	-	-	*33.566*	-	-	-	-	-	*33.566*
Subtotal: Hardware - Ocean Systems Cost	**-**	**-**	***222.629***	**-**	**-**	***27.486***	**-**	**-**	***14.770***	**-**	**-**	***33.566***	**-**	**-**	**-**	**-**	**-**	***33.566***
Hardware - Large Area Tracking Range Cost																		
Recurring Cost																		
3.1.1) SC034 LATR Shipboard Rotary Technology Upgrade	-	-	3.308	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4204 / Weapons Range Support Equipment	Item Number / Title [DODIC]: 1 / Weapons Range Support Equipment
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
3.1.2) SC132 LATR Navigation Technology Refresh	-	-	4.846	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*8.154*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: Hardware - Large Area Tracking Range Cost	**-**	**-**	***8.154***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hardware - Tactical Combat Training System Cost																		
Recurring Cost																		
4.1.1) SC158 TCTS Ground Subsystem(†) (3)	-	-	-	-	-	-	1,220K	1	1.220	472,579.00	1	0.473	-	-	-	472,579.00	1	0.473
4.1.2) SC140 TCTS Remote Range Unit(†) (4)	-	-	-	-	-	-	220,859.00	2	0.442	261,716.00	9	2.355	-	-	-	261,716.00	9	2.355
Subtotal: Recurring Cost	-	-	-	-	-	-	-	-	*1.662*	-	-	*2.828*	-	-	-	-	-	*2.828*
Subtotal: Hardware - Tactical Combat Training System Cost	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	***1.662***	**-**	**-**	***2.828***	**-**	**-**	**-**	**-**	**-**	***2.828***
Hardware - Electronic Warfare Training Equipment Cost																		
Recurring Cost																		
5.1.1) SC105 EW - Threat Presentation (5)	-	-	147.364	-	-	36.739	-	-	16.679	-	-	24.910	-	-	-	-	-	24.910
Subtotal: Recurring Cost	-	-	*147.364*	-	-	*36.739*	-	-	*16.679*	-	-	*24.910*	-	-	-	-	-	*24.910*
Subtotal: Hardware - Electronic Warfare Training Equipment Cost	**-**	**-**	***147.364***	**-**	**-**	***36.739***	**-**	**-**	***16.679***	**-**	**-**	***24.910***	**-**	**-**	**-**	**-**	**-**	***24.910***
Hardware - Aerial Targets Range Support Equipment Cost																		
Recurring Cost																		
6.1.1) SC151 MLT Hardware (6)	-	-	16.336	-	-	1.817	-	-	1.504	-	-	1.483	-	-	-	-	-	1.483
6.1.2) SC152 MLT Engineering Change Proposals (7)	-	-	0.795	-	-	0.035	-	-	0.035	-	-	0.035	-	-	-	-	-	0.035
6.1.3) SC106 TTSP (8)	-	-	0.447	-	-	0.106	-	-	0.108	-	-	0.110	-	-	-	-	-	0.110
Subtotal: Recurring Cost	-	-	*17.578*	-	-	*1.958*	-	-	*1.647*	-	-	*1.628*	-	-	-	-	-	*1.628*
Subtotal: Hardware - Aerial Targets Range Support Equipment Cost	**-**	**-**	***17.578***	**-**	**-**	***1.958***	**-**	**-**	***1.647***	**-**	**-**	***1.628***	**-**	**-**	**-**	**-**	**-**	***1.628***

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4204 / Weapons Range Support Equipment	Item Number / Title [DODIC]: 1 / Weapons Range Support Equipment
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - Live-Virtual-Constructive Cost																		
Recurring Cost																		
7.1.1) SC711 LVC Range Integration [9]	-	-	10.147	-	-	6.796	-	-	14.367	-	-	7.811	-	-	-	-	-	7.811
Subtotal: Recurring Cost	-	-	*10.147*	-	-	*6.796*	-	-	*14.367*	-	-	*7.811*	-	-	-	-	-	*7.811*
Subtotal: Hardware - Live-Virtual-Constructive Cost	**-**	**-**	***10.147***	**-**	**-**	***6.796***	**-**	**-**	***14.367***	**-**	**-**	***7.811***	**-**	**-**	**-**	**-**	**-**	***7.811***
Software - SC158 TCTS Block Upgrade Cost																		
Recurring Cost																		
8.1.1) SC158 - TCTS Block Upgrade [10]	-	-	7.831	-	-	-	-	-	1.500	-	-	-	-	-	-	-	-	-
Subtotal: Recurring Cost	-	-	*7.831*	-	-	-	-	-	*1.500*	-	-	-	-	-	-	-	-	-
Subtotal: Software - SC158 TCTS Block Upgrade Cost	**-**	**-**	***7.831***	**-**	**-**	**-**	**-**	**-**	***1.500***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Support - Production Support Cost																		
9.1) SC820 SRAM	-	-	-	-	-	0.318	-	-	0.659	-	-	0.672	-	-	-	-	-	0.672
9.2) SC820 Ocean Systems	-	-	9.975	-	-	2.312	-	-	2.918	-	-	2.778	-	-	-	-	-	2.778
9.3) SC820 LATR	-	-	0.539	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.4) SC820 TCTS [11]	-	-	2.083	-	-	-	-	-	0.500	-	-	0.510	-	-	-	-	-	0.510
9.5) SC820 EW	-	-	3.632	-	-	2.107	-	-	2.853	-	-	2.051	-	-	-	-	-	2.051
9.6) SC820 LVC Range Integration	-	-	0.247	-	-	0.102	-	-	0.392	-	-	0.394	-	-	-	-	-	0.394
Subtotal: Support - Production Support Cost	**-**	**-**	***16.476***	**-**	**-**	***4.839***	**-**	**-**	***7.322***	**-**	**-**	***6.405***	**-**	**-**	**-**	**-**	**-**	***6.405***
Support - Production Engineering Cost																		
10.1) SC831 SRAM [12]	-	-	17.827	-	-	1.810	-	-	2.085	-	-	2.127	-	-	-	-	-	2.127
10.2) SC831 Ocean Systems [13]	-	-	40.956	-	-	8.265	-	-	10.143	-	-	6.764	-	-	-	-	-	6.764
10.3) SC831 LATR	-	-	1.106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.4) SC831 TCTS [14]	-	-	23.753	-	-	-	-	-	1.865	-	-	0.583	-	-	-	-	-	0.583
10.5) SC831 EW [15]	-	-	26.692	-	-	3.280	-	-	3.690	-	-	1.853	-	-	-	-	-	1.853
10.6) SC832 MLT	-	-	2.200	-	-	0.437	-	-	0.445	-	-	0.454	-	-	-	-	-	0.454
10.7) SC831 LVC Range Integration [16]	-	-	0.444	-	-	0.424	-	-	0.726	-	-	0.738	-	-	-	-	-	0.738
10.8) SC831 Prior Years	-	-	71.512	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4204 / Weapons Range Support Equipment	Item Number / Title [DODIC]: 1 / Weapons Range Support Equipment
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Support - Production Engineering Cost	-	-	***184.490***	-	-	***14.216***	-	-	***18.954***	-	-	***12.519***	-	-	-	-	-	***12.519***
Gross/Weapon System Cost	-	-	**803.332**	-	-	**101.793**	-	-	**85.469**	-	-	**98.898**	-	-	**0.000**	-	-	**98.898**

(†) indicates the presence of a P-5a

Footnotes:

(1) SC004 Systems Replacement and Modernization: The increase in FY 2022 funds fleet priorities for modernization efforts at Navy training ranges in support of fleet training wholeness.

(2) SC012 Ocean Systems: The increase in Ocean Systems in FY 2022 funds the continuation of the effort to replace the in-water sensor system and shore electronics for Anti-Submarine Warfare (ASW) training ranges at Pacific Missile Range Facility (PMRF), HI, including the Barking Sands Tactical Underwater Range (BARSTUR) and Barking Sands Underwater Range Expansion (BSURE) operating areas. The effort will be a time-phased procurement exception to the full funding policy. Hardware buys will vary in cost from year to year to meet the Fleet's required date for Full Operational Capability (FOC). FY 2022 procurements include funds for Ocean Sensor Subsystem (OSS) and Shore Electronic Subsystem (SES) Production Engineering Verification Testing and a Technical Review under the time-phased procurement contract. Additionally, FY 2022 procures long lead items to support the time phased procurement schedule, including the Internode Cable.

(3) SC158 TCTS Ground Subsystem: PB22 quantities have been redefined to reflect full up ground subsystems, which can consist of a variable number of modular subcomponents. PB21 quantities reflected individual subcomponents. FY 2022 funds the procurement of one complete Ground Subsystem (GS) to provide encryption capability for Fleet training exercises. Unit costs for GS include site-specific costs (site surveys and site activation) for each Training Range and will vary per year. FY21 includes site surveys for Cherry Point, NC and Fallon, NV. FY22 includes site survey for Lemoore, CA.

(4) SC140 TCTS Remote Range Unit: FY 2022 funds the procurement of nine Remote Range Units (RRU) to provide encryption capability for Fleet training exercises. Updated unit costs assumptions for procurement RRUs for Low Rate Initial Production (LRIP). Unit costs for RRU include site-specific costs for each Training Range and will vary per year.

(5) SC105 EW Threat Presentation: Fluctuations in funding from year to year reflect Navy prioritization of various Electronic Warfare (EW) Threat Presentation devices for use at multiple Tactical Training Range (TTR) sites, including Fallon, NV; Yuma, AZ; Southern California Offshore Range (SCORE), CA; Mid-Atlantic Electronic Warfare Range (MAEWR), NC. FY 2022 Fleet Training Wholeness Initiative procures additional Encrypted Range Radios and additional Anti-Ship Cruise Missile (ASCM) Digital Radio Frequency Memory (DRFM) modules for use at the East and West Coast Opposition Force (OPFOR) Training areas, one Spoon Rest foreign Military Equipment (FME) system modernization at Fallon site, and also funds Fleet Training Wholeness Initiative to complete specific number of electronic warfare system tech refreshes to improve availability and maintainability at Fleet range sites that include EW Opposition Force (OPFOR) training capabilities and connect those systems to the Navy Enterprise Tactical Training Network (NETTN).

(6) SC151 MLT Hardware: MLT Hardware includes Moving Land Target Vehicles, Ground Control Stations, Command and Control units, Data Links, Radio kits, Range equipment, Relays and other hardware such as kits to include but not limited to weapon instrumentation kits, specialty tires/ wheels, and equipment protection. Equipment being procured is based on the operational demand/ training requirements of the fleet, which vary from year to year; consequently, the items, quantities of items, and associated unit costs of the items being procured, vary from year to year. Hardware procured is not one for one with target vehicles.

(7) SC152 MLT ECP: Costs include the procurement of Engineering Change Proposals for critical hardware updates (i.e.: Information Assurance / Windows) with more stringent HW and SW requirements, as well as making system level changes to meet the requirements of the Risk Management Framework (RMF) Information Assurance (IA) processes.

(8) SC 106 - TTSP: Hardware quantities and unit costs are dependent upon which threat simulation equipment is being procured; some equipment is more expensive than others and the type of equipment being procured is dependent upon Fleet requirements and consumption. It is critical to maintain adequate inventory levels as these assets are required to establish readiness capability for the Fleet.

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4204 / Weapons Range Support Equipment	**Item Number / Title [DODIC]:** 1 / Weapons Range Support Equipment
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(9) SC711 LVC Range Integration: FY 2022 funds provide equipment for initial distributed capability in Guam and provide additional capability at the Whidbey Island Tactical Training Range (TTR) with voice communication and datalink equipment in support of Live Virtual Constructive (LVC) capabilities. Install distributed network capabilities at various West Coast TTR's, according to Fleet priorities, in support of LVC capabilities.

(10) FY21 $1.5M Congressional Add Funding for Naval Air Station Joint Reserve Base New Orleans; requesting reprogramming from Other Procurement, Navy (OPN) to National Guard and Reserve Equipment Account (NGREA) to support Reserve requirements.

(11) SC820 TCTS: The increase in FY 2022 for Tactical Combat Training System (TCTS) Increment II funds the first full year of production support for the procurement of one Ground Subsystems (GS) and nine Remote Range Units (RRU) to provide encryption capability for Fleet training exercises.

(12) SC831 SRAM: Production Engineering includes costs previously broken out under a separate line as Acceptance Test. Consolidation increases Program Office efficiency and better aligns program technical support costs in accordance with DoD Financial Management Regulations (FMR) guidance.

(13) SC831 Ocean Systems: Production Engineering includes costs previously broken out under a separate line as Acceptance Test. Consolidation increases Program Office efficiency and better aligns program technical support costs in accordance with DoD Financial Management Regulations (FMR) guidance.

(14) SC831 TCTS: Production Engineering includes costs previously broken out under a separate line as Acceptance Test. Consolidation increases Program Office efficiency and better aligns program technical support costs in accordance with DoD Financial Management Regulations (FMR) guidance. FY 2022 funds the first full year of engineering support for the procurement of one Ground Subsystems (GS) and nine Remote Range Units (RRU) to provide encryption capability for Fleet training exercises.

(15) SC831 EW: Production Engineering includes costs previously broken out under a separate line as Acceptance Test. Consolidation increases Program Office efficiency and better aligns program technical support costs in accordance with DoD Financial Management Regulations (FMR) guidance.

(16) SC831 LVC Range Integration: Production Engineering includes costs previously broken out under a separate line as Acceptance Test. Consolidation increases Program Office efficiency and better aligns program technical support costs in accordance with DoD Financial Management Regulations (FMR) guidance.

Exhibit P-5a, Procurement History and Planning: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4204 / Weapons Range Support Equipment	Item Number / Title [DODIC]: 1 / Weapons Range Support Equipment

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
4.1.1) SC158 TCTS Ground Subsystem		2021	Collins Aerospace / Cedar Rapids, IA	C / FPIF	NAWCTSD	May 2021	Jun 2022	1	1,220K	Y		May 2020
4.1.1) SC158 TCTS Ground Subsystem		2022	Collins Aerospace / Cedar Rapids, IA	C / FPIF	NAWCTSD	Dec 2021	Jan 2023	1	472,579.00	Y		May 2021
4.1.2) SC140 TCTS Remote Range Unit		2021	Collins Aerospace / Cedar Rapids, IA	C / FPIF	NAWCTSD	May 2021	Jun 2022	2	220,859.00	Y		May 2020
4.1.2) SC140 TCTS Remote Range Unit		2022	Collins Aerospace / Cedar Rapids, IA	C / FPIF	NAWCTSD	Dec 2021	Jan 2023	9	261,716.00	Y		May 2021

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 0204112N	Other Related Program Elements: 0604512N, 0604112N, 0604530N

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	507.553	187.926	236.655	178.647	0.000	178.647	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	507.553	187.926	236.655	178.647	0.000	178.647	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**507.553**	**187.926**	**236.655**	**178.647**	**0.000**	**178.647**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	2.053	2.119	3.274	-	3.274	-	-	-	-	-	-
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

AVIATION SUPPORT EQUIPMENT provides funds for the procurement of air-launched anti-submarine (ASW) detection and other general support equipment associated with aircraft systems. Other support equipment includes ground electronics equipment, aircraft launch and recovery equipment, photographic equipment, reconnaissance and electronic warfare process.
The items contained within this budget line item were previously funded under the following line items in FY14 and prior:
4208 Expeditionary Airfields
4214 Aircraft Rearming Equipment
4216 Aircraft Launch and Recovery Equipment
4255 LAMPS MK III Shipboard Equipment

[P5 / Expeditionary Airfields]: This program provides for procurement of aircraft recovery equipment, landing mat and accessories, airfield lighting and Visual Landing Aids for Naval Aviation Expeditionary Airfields (EAF.) EAF recovery equipment consists of the M31 arresting gear and its accessories. This equipment is used to stop aircraft in less than 1000 ft. EAF landing mats and accessories are used to construct airfields of varying configurations such as, 5000+ ft conventional airport runways and taxiways, Forward Arming and Refueling Points (FARPs), Forward Operating Bases (FOBs), Landing Zones (LZs) and Helo Pads. EAF Lighting equipment augments the many types of EAFs with lighting of the runways, taxiways, LZs, FARPs, FOBs and Helo pads. Much of the EAF Lighting utilizes Infra Red Lighting for use with Night Vision Devices for night operations by all Type/Model/Series aircraft. Fresnel Lens Optical Landing Systems and Precision Approach Path Indicator systems are used to guide aircraft to the proper landing or arresting gear area of the EAF. This core funding level directly supports the procurement and fielding of operational EAF systems for three Active Marine Aircraft Wings (MAW) and one Reserve MAW, testing and training installations, and provides assets for use by the Marine Expeditionary Forces during contingency operations.

[P5 - 2 / Acft Rearming Equip]: This program funds the procurement of common Armament Support Equipment (ASE), and Weapons Support Equipment (WSE) under the procurement and inventory control of the Naval Inventory Control Point and the Naval Air Systems Command. This budget line supports: (a) initial outfitting for all in-production weapons systems; (b) procurement of new Support Equipment, and (c) procurement of replacement items for obsolete Support Equipment. These items support sustained operations and surge deployments of the CV battle groups. Shipboard/Shorebased WSE is utilized by weapons departments to handle, transport, and maintain weapons. Shipboard/Shorebased ASE is utilized by squadrons and supporting activities to load and service aircraft weapons and guns.

[P5 - 3 / Air Launch & Recovery Equip]: This program provides for the procurement of aircraft launch, recovery, visual landing aids, and related information systems as well as ancillary items required for installation aboard aircraft carriers, air capable combatant vessels, amphibious assault ships and shore stations. It also provides cyber resiliency within the Aviation Land and Launch Enclave (ALLE) for ALRE.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 0204112N	Other Related Program Elements: 0604512N, 0604112N, 0604530N
Line Item MDAP/MAIS Code: N/A		

ALRE works jointly through ALLE with PMA-213 Air Traffic and Control (ATC) and Landing System and will enhance network segmentation, device hardening, centralized monitoring, increased cyber situational awareness and incident response within the enclave. Procurements are initiated due to a variety of reasons including fleet-generated reports associated with safe and reliable operations of existing equipment, support of fixed and rotary wing aircraft on Air Capable Ships, and maintaining reliability, availability and maintainability of ALRE equipment. Engineering Change Proposals (ECPs) are generated and processed via a Configuration Control Board. Once approved, the ECP final product is a service change kit. These kits are identified for installation aboard applicable ships as well as shore-based installations in the ECP. Major shipboard equipment items are generally installed by shipyard personnel, alteration installation teams or fleet readiness centers voyage repair teams during routine or restricted availabilities of the various ships. Service change kits support corrective actions that result from changes in operational conditions, obsolescence, and improvements in reliability, availability and maintainability.

Beginning in FY22 the ADMACS program is utilizing the P-5 cost analysis budget exhibit to display the costs associated with a simple modification performed organically at the Organizational level.
The Aviation Data Management and Control System (ADMACS) is an integrated, network-centric, shipboard aviation operations information management system, which provides data required for aircraft carriers aviation operations planning, execution and readiness assessment. ADMACS communicates aviation and command related data elements across the ADMACS Local Area Network and Integrated Shipboard Network System that electronically displays
position and location of aircraft on the flight and hangar decks, status of aircraft, Aircraft Launch and Recovery Equipment, fuel, weapons types and quantity as well as a wide variety of other aviation related and ship information.

ADMACS transitions in FY 2021 from a common configuration effort to a system upgrade effort to address obsolescence and deficiencies. Efforts are heavily focused in a Product Improvement budget element to integrate software intensive field technical solutions, which vary in complexity and cost. ADMACS requires a constant upgrade path to ensure interoperability between over a dozen CVN systems, meet cyber security mandates, avoid costly retrofits of fielded systems, and ensure interoperability between tightly coupled COTS software applications, operating systems, and hardware processing nodes. Consequently, product improvement resources are required to comply with evolving security compliance requirements that necessitate a more frequent update cycle to combat obsolescence and adhere to commercial hardware/software supportability mandates. Given the constraints of Carrier availabilities, upgrades are planned based upon OPNAV controlled Carrier Availability Schedule. ADMACS deficiencies can be discovered during test through System Trouble Reports (STRs), in operation which can result from Casualty Reports (CASREPs), or in engineering investigations, hardware (HW) obsolescence or cybersecurity mandates as required by the Navy's Defense-in Depth Functional Implementation Architecture (DFIA) standard. ADMACS will executes technical solutions for cybersecurity patching, HW obsolescence, and the resolution of STRs through multiple ECPs, including ECP-0285 (software interface with EMALS and AAG on CVN 78), ECP-0493 (interface with technical refresh of LSODS), ECP-0529 (addresses software and firmware obsolescence), as well as several other critical ADMACS ECPs.

[P5 - 4 / Natural Disaster Recovery]: Severe earthquakes in the Ridgecrest, CA area impacted Naval Air Warfare Station (NAWS) China Lake on 4 July (magnitude 6.4) and 5 July (magnitude 7.1) 2019. As a result, NAWS experienced severe damage to equipment within buildings, magazines, airfield pavements, other structures, and infrastructure. Numerous facilities were either partially damaged or rendered uninhabitable. Restoration efforts identified buildings, structures, and equipment that either require repair or complete replacement.

[P3A - 4 / LAMPS MK III - SRQ(KU)-4 (S1010)]: LAMPS MK III, AN/SRQ-4 (Ku), is an over the horizon information dominance system with a high-speed, air-to-ground, digital data link that transmits reconnaissance and other data from MH-60 helicopters to surface ships (cruisers and destroyers) to enable data, imagery, electronic support measures, communications, and radar information via the Ku-band link.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment
ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** 0204112N
Other Related Program Elements: 0604512N, 0604112N, 0604530N	
Line Item MDAP/MAIS Code: N/A	

Exhibits Schedule					Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	1 / Expeditionary Airfields	P-5a, P-21			- / 35.648	- / 25.894	- / 69.462	- / 11.754	- / 0.000	- / 11.754
P-5	2 / Acft Rearming Equip	P-5a, P-21			- / 58.267	- / 12.058	- / 10.514	- / 12.259	- / 0.000	- / 12.259
P-5	3 / Air Launch & Recovery Equip				- / 165.578	- / 52.047	- / 49.065	- / 61.747	- / 0.000	- / 61.747
P-5	4 / Natural Disaster Recovery				- / 0.000	- / 39.295	- / 50.871	- / 64.674	- / 0.000	- / 64.674
P-3a	1 / ALRE - Advanced Arresting Gear (SJ301) (Advanced Arresting Gear (SJ301))				- / 15.574	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-3a	2 / ALRE - ADMACS Block Upgrade (SJ302) (Increase Capability)				- / 123.643	- / 19.378	- / 15.596	- / 2.397	- / 0.000	- / 2.397
P-3a	3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306) (Reliability and Maintainability)				- / 12.225	- / 13.882	- / 5.553	- / 8.000	- / 0.000	- / 8.000
P-3a	4 / LAMPS MK III - SRQ(KU)-4 (S1010) (Non-Organic)				- / 96.618	- / 25.372	- / 35.594	- / 17.816	- / 0.000	- / 17.816
P-40	**Total Gross/Weapon System Cost**				**- / 507.553**	**- / 187.926**	**- / 236.655**	**- / 178.647**	**- / 0.000**	**- / 178.647**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

Expeditionary Airfields (EAF) - FY 2022 funding is required for EAF Surfacing equipment, EAF Lighting Equipment, EAF Arresting Gear, associated ECPs and supports the Expeditionary Airfield 2000.1 design to support the Table of Basic Allowance (TBA) set by Headquarters Marine Corps Aviation Ground Support (APX-34) for a quantity to field 6000-foot scalable aircraft runways. This includes the procurement of Airfield Matting Type 2 (AM2), AM2 Accessories and the associated ECP support equipment modernization of current programs of record. Starting in FY2022 the clear roadmap is focused on modernizing the force in accordance with the National Defense Strategy (NDS) and the Commandant Planning Guidance (CPG), ensuring that the EAF program continues supporting across the combatant commanders ability to maneuver across expeditionary battle space. EAF is realigned to meet the challenges posed by a re-emergence of long-term strategic near-peer competitors. Concurrently, EAF is supporting existing efforts across the full spectrum of Range of Military Operations (ROMO), including foreign humanitarian assistance, disaster relief, and noncombatant evacuations. FY 2022 increase is to fund support of Expeditionary Air Fields Approach lighting and Airfield upgrades.

Aircraft Rearming Equipment - FY 2022 baseline funding is required for MHU-191/M CILOP, MHU-126/202 Trailer Replacement, USMC A/S32K-1E Weapons Loader Replacement, and associated support costs.

Aircraft Launch and Recovery Equipment (ALRE) - FY 2022 funding is required for support of 48 ALRE equipment systems. Major categories of ALRE systems support include: Launcher, Recovery, Information Systems, Visual Landing Aides (VLA), and Aviation Land and Launch Enclave (ALLE). Included in this budget are Individual Modification exhibits for Electromagnetic Aircraft Launch System (EMALS), and Aviation Data Management and Control System (ADMACS) Block Upgrade. Increases from FY 2021 to FY 2022 across ALRE systems supports hardware purchases, non-recurring engineering efforts, Integrated Logistics Support, and production engineering activities required for multiple ECPs to rectify critical obsolescence items, resolve evolving Cybersecurity upgrades to correct deficiencies identified through the National Defense Authorization Act (NDAA) mandated risk assessment process, and to implement technical refresh of critical out of production ALRE systems. ALRE is unique in nature in that systems are very seldom sun-downed. Several current Visual Landing Aid (VLA), Launcher and Recovery systems require significant investment due to obsolete 1960's technology. Mk-7 Arresting Gear and Advance Recovery Systems are going through multiple ECPs to extend service life and to continue to provide Carrier Aviation arresting gear capability to the current and future air wing. Optical Landing System and Long Range Lineup System are no longer produced or supported by the Original Equipment Manufacturer (OEM). These systems require complete organic technical redesign, requalification and manufacture to maintain aircraft recovery capability on Aircraft Carriers and Amphibious Assault Ships. The Integrated Launch and Recovery Television Surveillance System (ILARTS) is based on both functional

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: 0204112N	Other Related Program Elements: 0604512N, 0604112N, 0604530N
Line Item MDAP/MAIS Code: N/A		

and technical obsolete 1980's technology that is no longer supportable by industry, therefore requiring replacement and qualification of a Digital ILARTS System to meet both operational and safety requirements for Aircraft Carrier aviation operations.

LAMPS MK III Shipboard Equipment - The FY 2022 baseline funding provides procurement support and associated installation support of AN/SRQ-4(Ku) field install kits

Natural Disaster Recovery - FY 2022 funding is required to outfit, update, recalibrate, and replace peculiar support equipment needed to restore mission capability due to severe earthquakes in the Ridgecrest, CA area which impacted Naval Air Warfare Station (NAWS) China Lake.

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Item Number / Title [DODIC]:** 1 / Expeditionary Airfields
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	35.648	25.894	69.462	11.754	0.000	11.754
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	35.648	25.894	69.462	11.754	0.000	11.754
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**35.648**	**25.894**	**69.462**	**11.754**	**0.000**	**11.754**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - (SE010) EAF Surfacing Equipment Cost																		
Recurring Cost																		
1.1.1) AM-2-Matting (F72)(†) (1)	7,808.99	178	1.390	8,493.00	998	8.476	8,274.00	4,164	34.453	8,379.12	364	3.050	-	-	0.000	8,379.12	364	3.050
1.1.2) AM-2 Matting (F73)(†)	10,375.00	8	0.083	11,944.00	3	0.036	11,641.00	4	0.047	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) AM-2 Matting (F71)(†)	11,835.40	322	3.811	13,508.00	302	4.079	13,091.00	1,032	13.510	13,364.00	64	0.855	-	-	0.000	13,364.00	64	0.855
1.1.4) AM-2 Accessory Packs (1) (2)	-	-	1.548	-	-	2.981	-	-	2.807	-	-	0.017	-	-	0.000	-	-	0.017
1.1.5) Surfacing engineering change proposals (3)	-	-	8.589	-	-	1.948	-	-	1.922	-	-	2.284	-	-	0.000	-	-	2.284
Subtotal: Recurring Cost	-	-	*15.421*	-	-	*17.520*	-	-	*52.739*	-	-	*6.206*	-	-	*0.000*	-	-	*6.206*
Subtotal: Hardware - (SE010) EAF Surfacing Equipment Cost	**-**	**-**	***15.421***	**-**	**-**	***17.520***	**-**	**-**	***52.739***	**-**	**-**	***6.206***	**-**	**-**	***0.000***	**-**	**-**	***6.206***
Hardware - (SE860) Acceptance Testing and Evaluation - Surfacing Cost																		
Recurring Cost																		
2.1.1) EAF Surfacing Equipment (4)	-	-	1.669	-	-	0.369	-	-	0.352	-	-	0.260	-	-	0.000	-	-	0.260
Subtotal: Recurring Cost	-	-	*1.669*	-	-	*0.369*	-	-	*0.352*	-	-	*0.260*	-	-	*0.000*	-	-	*0.260*
Subtotal: Hardware - (SE860) Acceptance Testing	**-**	**-**	***1.669***	**-**	**-**	***0.369***	**-**	**-**	***0.352***	**-**	**-**	***0.260***	**-**	**-**	***0.000***	**-**	**-**	***0.260***

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 1 / Expeditionary Airfields
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
and Evaluation - Surfacing Cost																		
Hardware - (SE010) EAF Lighting Equipment Cost																		
Recurring Cost																		
3.1.1) EAF Lighting Equipment [5]	-	-	1.362	-	-	3.708	-	-	12.031	-	-	0.000	-	-	0.000	-	-	0.000
3.1.2) Lighting Engineering Change Proposals [6]	-	-	7.204	-	-	2.315	-	-	2.300	-	-	3.379	-	-	0.000	-	-	3.379
Subtotal: Recurring Cost	-	-	*8.566*	-	-	*6.023*	-	-	*14.331*	-	-	*3.379*	-	-	*0.000*	-	-	*3.379*
Subtotal: Hardware - (SE010) EAF Lighting Equipment Cost	**-**	**-**	***8.566***	**-**	**-**	***6.023***	**-**	**-**	***14.331***	**-**	**-**	***3.379***	**-**	**-**	***0.000***	**-**	**-**	***3.379***
Hardware - Acceptance Testing - Lighting Cost																		
Recurring Cost																		
4.1.1) EAF Lighting Equipment [7]	-	-	1.472	-	-	0.185	-	-	0.163	-	-	0.133	-	-	0.000	-	-	0.133
Subtotal: Recurring Cost	-	-	*1.472*	-	-	*0.185*	-	-	*0.163*	-	-	*0.133*	-	-	*0.000*	-	-	*0.133*
Subtotal: Hardware - Acceptance Testing - Lighting Cost	**-**	**-**	***1.472***	**-**	**-**	***0.185***	**-**	**-**	***0.163***	**-**	**-**	***0.133***	**-**	**-**	***0.000***	**-**	**-**	***0.133***
Hardware - (SE0210) EAF Arresting Gear Cost																		
Recurring Cost																		
5.1.1) M-31 Engineering Change Proposals [8]	-	-	1.994	-	-	0.489	-	-	0.525	-	-	0.579	-	-	0.000	-	-	0.579
Subtotal: Recurring Cost	-	-	*1.994*	-	-	*0.489*	-	-	*0.525*	-	-	*0.579*	-	-	*0.000*	-	-	*0.579*
Subtotal: Hardware - (SE0210) EAF Arresting Gear Cost	**-**	**-**	***1.994***	**-**	**-**	***0.489***	**-**	**-**	***0.525***	**-**	**-**	***0.579***	**-**	**-**	***0.000***	**-**	**-**	***0.579***
Hardware - Acceptance Testing - Arresting Gear Cost																		
Recurring Cost																		
6.1.1) EAF Arresting Gear [9]	-	-	0.403	-	-	0.048	-	-	0.067	-	-	0.140	-	-	0.000	-	-	0.140
Subtotal: Recurring Cost	-	-	*0.403*	-	-	*0.048*	-	-	*0.067*	-	-	*0.140*	-	-	*0.000*	-	-	*0.140*
Subtotal: Hardware - Acceptance Testing - Arresting Gear Cost	**-**	**-**	***0.403***	**-**	**-**	***0.048***	**-**	**-**	***0.067***	**-**	**-**	***0.140***	**-**	**-**	***0.000***	**-**	**-**	***0.140***
Support - (SE800) Integrated Logistics Cost																		

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 1 / Expeditionary Airfields
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
7.1) EAF Surfacing Equipment	-	-	2.289	-	-	0.434	-	-	0.442	-	-	0.378	-	-	0.000	-	-	0.378
7.2) EAF Lighting Equipment	-	-	0.310	-	-	0.051	-	-	0.053	-	-	0.025	-	-	0.000	-	-	0.025
7.3) EAF Arresting Gear	-	-	0.310	-	-	0.046	-	-	0.049	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Support - (SE800) Integrated Logistics Cost	**-**	**-**	***2.909***	**-**	**-**	***0.531***	**-**	**-**	***0.544***	**-**	**-**	***0.403***	**-**	**-**	***0.000***	**-**	**-**	***0.403***
Support - (SE830) Production Engineering Cost																		
8.1) EAF Surfacing Equipment	-	-	1.969	-	-	0.495	-	-	0.497	-	-	0.266	-	-	0.000	-	-	0.266
8.2) EAF Lighting Equipment	-	-	0.531	-	-	0.069	-	-	0.065	-	-	0.200	-	-	0.000	-	-	0.200
8.3) EAF Arresting Gear	-	-	0.714	-	-	0.165	-	-	0.179	-	-	0.188	-	-	0.000	-	-	0.188
Subtotal: Support - (SE830) Production Engineering Cost	**-**	**-**	***3.214***	**-**	**-**	***0.729***	**-**	**-**	***0.741***	**-**	**-**	***0.654***	**-**	**-**	***0.000***	**-**	**-**	***0.654***
Gross/Weapon System Cost	**-**	**-**	**35.648**	**-**	**-**	**25.894**	**-**	**-**	**69.462**	**-**	**-**	**11.754**	**-**	**-**	**0.000**	**-**	**-**	**11.754**

Remarks:

The quantities of AM-2 and light weight/medium duty Matting procured vary depending on the type of matting and service change requirements each year. The equipment, accessories and service changes are procured and fielded with these funds. Equipment procurements are based on inventory shortfalls, product improvements to fill or correct deficiencies, modernizing EAF equipment to improve availability, maintainability, reliability, supportability, deployability, safety-of-flight and to keep pace with new aircraft and aircraft systems. EAF's modernization will focus special emphasis on capabilities across the full spectrum of expeditionary military operations, focusing on cross theater deployability, inter-theater mobility, and enabling the community to support the day-to-day consequence of being the force-in-readiness.

(†) indicates the presence of a P-5a

Footnotes:

(1) AM2 Matting (cost elements 1.1.1 - 1.1.3) - The cost of the AM2 is based on a yearly rate of 80,000 square feet which is used to account for lost and damaged AM2. This yearly rate is 270,000 square feet short of the APX-34 Headquarters Marine Corps requirement of replacement of 5% of the total AM2 installed currently around 7,000,000 square feet. This rate ensures that the assets in the Table of Basic Allowance are maintained. The Table of Basic Allowance rates are used to maintain the proper amount of AM2 Matting per HQMC standards and is formulated off of yearly submitted fleet asset reports. This does not include the addition of AM2 assets to the inventory, but sustainment only due to loss and damage. FY 2021 includes OCO funding. AM2 Matting (cost elements 1.1.1 - 1.1.3) quantity changes based on tracking of EAF projected fleet requirements from the Table of Basic Allowance and the Marine Wing Support Squadron available assets to determine what needs to be procured on an annual basis. Increases in AM2 Matting is a result of APX-34 and NAVAIR changing the AM2 surfacing lay pattern increasing the amount of AM2 Matting required in the Table of Basic Allowance. The change in the lay pattern of airfields is required to support logistical requirements set by Combat Development and Integration (CD&I) and HQMC. Reduction of F71 assets and increase of F72's standardizes the AM2 installation requirements across the fleet. This strategy capitalizes on efficiencies throughout the planning and shipment phases while providing maneuverability across the battlespace and enhancing flexibility during installations of Expeditionary Airfields. This requires a gross increase in the amount of F72 AM2 packages to meet the updated HQMC table of basic allowance requirements for airfields. A new Firm-Fixed-Price contract for AM-2 Matting was awarded in May 2019 and will show increases in unit costs each year driven by inflation.

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 1 / Expeditionary Airfields
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

(2) AM-2 Accessory Packs (1.1.4) AM-2 Accessory Packs consist of multiple low priced items. There are several types of hardware configurations that are procured each year, therefore, individual quantities are not provided for some Expeditionary equipment. Accessory Packs are required per the Table of Basic Allowance and hardware component items required change based on fleet asset reports back to NAVAIR as a result of increased requirements per APX-34 or damaged accessories that require replacement. FY21 OPN OCO funding is providing reset of AM2 accessory requirements per TBA.

(3) Surfacing Engineering Change Proposals (1.1.5) supports the procurement of hardware to support multiple Surfacing ECPs and the associated engineering support. Surfacing ECPs are required to adapt to diverse airfield operating environments which drive changes to tool kits necessary for matting installation, accommodating new aircraft heat signatures (i.e. JSF, V22) as well as variable soil compositions. Increase in this line due to CPG in the INDO-PACOM theater changes in mission direction requiring ECP of current legacy surfacing systems including light weight mat and medium-duty mat to modernize EAF equipment and improve availability, maintainability, reliability, supportability and deployability of these systems.

(4) Surfacing Equipment Acceptance Test & Evaluation (2.1.1) address the Acceptance Testing required to support multiple Surfacing ECPs. F21-FY22, bulk of evaluation efforts included in FY21 will reduce the FY22 test burden for light weight Mat.

(5) 3.1.1) EAF Lighting Equipment - FY 2021 includes OCO funding.

(6) Lighting Engineering Change Proposals (3.1.2) address the obsolescence and reliability of an aging legacy system as well as the CAT I Instrument Flight Rules and Night Vision Device. Lighting ECPs will improve readiness and safety to ensure Navy/Marine Corps aircraft can land at night in austere environments. EAF has been directed per HQMC to increase airfield light capability to overcome aging systems and meet updated forward deployment table of basic allowance requirements. FY 2022 increase partially fulfills a request for increase to incrementally improve and procure Expeditionary Air Fields; Approach lighting and commercial Airfield lighting solution hardware, including upgrading commercial ECP solutions throughout the FYDP. COTS LED Airfield Upgrade ECP will provide a more deployable, maneuverable modernized commercial based system that meets the above requirements while allowing procurement at an expeditious rate in-line with the Commandant Planning Guidance and ASN RDA direction.

(7) Lighting Equipment Acceptance Test & Evaluation (4.1.1) address the Acceptance Testing required to support multiple Lighting ECPs; specifically the Approach lighting and Airfield upgrades. Testing efforts for the COTS LED Airfield Upgrade ECP will complete in FY22.

(8) M-31 Engineering Change Proposals (5.1.1) supports the aging M-31 Marine Corps Expeditionary Arresting Gear System (MCEAGS) by providing ECP Hardware and engineering support to improve readiness, increase safety, and replacement of obsolescent assemblies. FY 2021 to 2022 increases in ECP Hardware are in direct support to allow mission requirements to be met as the USMC EAF efforts roll into INDO-PACOM theater. Per Commandant Planning Guidance, the Marine Corps is required to be more expeditionary and improve readiness times in rapidly evolving future operating environments. The coral anchoring ECP is a must to improve upon the installment time of the M31 in this common pacific terrain where the EAF missions are headed. This ECP will help meet HQMC capability gap for quicker embarkment and installation requirements of forward deployed Expeditionary Airfields. MCEAGS proper installation is required for airfield certification to allow USMC tail-hook aircraft the ability to land where the landscape requires short distance runways.

(9) EAF Arresting Gear (6.1.1) The increase in FY 2022 is to support the coral anchoring evaluation efforts and perform testing in the INDO-PACOM region or simulate/model/recreate the coral environment at an added cost, along with the testing required to accept and prove the improved readiness, safety, and correct the obsolescent deficiencies of the aging M-31 arresting gear system.

Exhibit P-5a, Procurement History and Planning: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 1 / Expeditionary Airfields

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.1) AM-2-Matting (F72)(†)		2019	ALFAB / Enterprise, AL	C / FFP	LKE	May 2019	Nov 2019	87	8,493.00	Y		Apr 2018
1.1.1) AM-2-Matting (F72)(†)		2020	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2019	May 2020	384	8,493.00	Y		Apr 2018
1.1.1) AM-2-Matting (F72)(†)	✓	2020	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2019	May 2020	614	8,493.00	Y		Apr 2018
1.1.1) AM-2-Matting (F72)(†)		2021	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2020	May 2021	184	8,274.00	Y		Apr 2018
1.1.1) AM-2-Matting (F72)(†)	✓	2021	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2020	May 2021	3,980	8,274.00	Y		Apr 2018
1.1.2) AM-2 Matting (F73)		2019	ALFAB / Enterprise, AL	C / FFP	LKE	May 2019	Nov 2019	3	11,944.00	Y		Apr 2018
1.1.2) AM-2 Matting (F73)		2020	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2019	May 2020	3	11,944.00	Y		Apr 2018
1.1.2) AM-2 Matting (F73)		2021	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2020	May 2021	4	11,641.00	Y		Apr 2018
1.1.3) AM-2 Matting (F71)(†)		2019	ALFAB / Enterprise, AL	C / FFP	LKE	May 2019	Nov 2019	69	13,508.00	Y		Apr 2018
1.1.3) AM-2 Matting (F71)(†)		2020	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2019	May 2020	156	13,508.00	Y		Apr 2018
1.1.3) AM-2 Matting (F71)(†)	✓	2020	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2019	May 2020	146	13,508.00	Y		Apr 2018
1.1.3) AM-2 Matting (F71)(†)		2021	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2020	May 2021	42	13,091.00	Y		Apr 2018
1.1.3) AM-2 Matting (F71)(†)	✓	2021	ALFAB / Enterprise, AL	C / FFP	LKE	Nov 2020	May 2021	990	13,091.00	Y		Apr 2018

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 1 / Expeditionary Airfields

Cost Elements (Units in Each)							Fiscal Year 2019												Fiscal Year 2020												BALANCE
							Calendar Year 2019												Calendar Year 2020													
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2018	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.1) AM-2-Matting (F72) (1)																															
Prior Years Deliveries: 91																															
	1	2019	NAVY	87	0	87								A -	-	-	-	-	-	87											0
	1	2020	NAVY	384	0	384														A -	-	-	-	-	-	218	166				0
✓	1	2020	NAVY	614	0	614														A -	-	-	-	-	-	250	250	114			0
	1	2021	NAVY	184	0	184																									184
✓	1	2021	NAVY	3,980 (10)	0	3,980																									3,980
1.1.3) AM-2 Matting (F71)																															
Prior Years Deliveries: 253																															
	2	2019	NAVY	69	0	69								A -	-	-	-	-	-	69											0
	2	2020	NAVY	156	0	156														A -	-	-	-	-	-	156					0
✓	2	2020	NAVY	146	0	146														A -	-	-	-	-	-	146					0
	2	2021	NAVY	42	0	42																									42
✓	2	2021	NAVY	990	0	990																									990
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 1 / Expeditionary Airfields

Cost Elements (Units in Each)							Fiscal Year 2021												Fiscal Year 2022												
							Calendar Year 2021												Calendar Year 2022												
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2020	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	BALANCE
1.1.1) AM-2-Matting (F72) (1)																															
Prior Years Deliveries: 91																															
	1	2019	NAVY	87	87	0																									0
	1	2020	NAVY	384	384	0																									0
✓	1	2020	NAVY	614	614	0																									0
	1	2021	NAVY	184	0	184		A	-	-	-	-	-	184																	0
✓	1	2021	NAVY	3,980 (10)	0	3,980		A	-	-	-	-	-	331	331	331	331	332	332	332	332	332	332	332							0
1.1.3) AM-2 Matting (F71)																															
Prior Years Deliveries: 253																															
	2	2019	NAVY	69	69	0																									0
	2	2020	NAVY	156	156	0																									0
✓	2	2020	NAVY	146	146	0																									0
	2	2021	NAVY	42	0	42		A	-	-	-	-	-	42																	0
✓	2	2021	NAVY	990	0	990		A	-	-	-	-	-	256	256	256	222														0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Item Number / Title [DODIC]:** 1 / Expeditionary Airfields

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2022	1-8-5 For 2022	MAX For 2022	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	ALFAB - Enterprise, AL	256	256	4,164	0	8	6	14	0	2	6	8
2	ALFAB - Enterprise, AL	256	256	3,072	0	8	6	14	0	2	6	8

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Footnotes:
(10) Production Rates refer to the production and delivery of AM2 F71, F72 and F73s.

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 2 / Acft Rearming Equip
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	58.267	12.058	10.514	12.259	0.000	12.259
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	58.267	12.058	10.514	12.259	0.000	12.259
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**58.267**	**12.058**	**10.514**	**12.259**	**0.000**	**12.259**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - HARDWARE - Ordnance Assembly Cost																		
Recurring Cost																		
1.1.1) SH042 - USMC WEAPONS ASSEMBLY STATION (A/E32K-11 LIFTING ASSLY)	273,666.67	6	1.642	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*1.642*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - HARDWARE - Ordnance Assembly Cost	**-**	**-**	***1.642***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - HARDWARE - Ordnance Transport Cost																		
Recurring Cost																		
2.1.1) SH036 - USMC A/M32K-4A MUN TRLR REPLACEMENT - (A/M32K-10 MUN TRLR)	57,063.75	251	14.323	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
2.1.2) SH043 - MHU-191/M CILOP - MHU-191A/M MUN TRANSPORTER(†) (11)	5,621.24	2,928	16.459	6,208.21	706	4.383	5,855.76	312	1.827	6,756.48	246	1.662	-	-	0.000	6,756.48	246	1.662
2.1.3) SH045 - MHU-126/202 TRLR REPLACEMENT - (MHU-230/M)(†) (12)	250,000.00	4	1.000	34,000.00	15	0.510	-	-	0.000	17,000.00	122	2.074	-	-	0.000	17,000.00	122	2.074

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 2 / Acft Rearming Equip
ID Code (A=Service Ready, B=Not Service Ready) :		MDAP/MAIS Code:

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Recurring Cost	-	-	*31.782*	-	-	*4.893*	-	-	*1.827*	-	-	*3.736*	-	-	*0.000*	-	-	*3.736*
Subtotal: Hardware - HARDWARE - Ordnance Transport Cost	**-**	**-**	***31.782***	**-**	**-**	***4.893***	**-**	**-**	***1.827***	**-**	**-**	***3.736***	**-**	**-**	***0.000***	**-**	**-**	***3.736***
Hardware - HARDWARE - Ordnance Loading Cost																		
Recurring Cost																		
3.1.1) SH046 - USMC A/S32K-1E WEAPONS LOADER REPLACEMENT(†) (13)	144,925.93	54	7.826	141,923.00	39	5.535	143,234.00	47	6.732	146,179.00	46	6.724	-	-	0.000	146,179.00	46	6.724
Subtotal: Recurring Cost	-	-	*7.826*	-	-	*5.535*	-	-	*6.732*	-	-	*6.724*	-	-	*0.000*	-	-	*6.724*
Subtotal: Hardware - HARDWARE - Ordnance Loading Cost	**-**	**-**	***7.826***	**-**	**-**	***5.535***	**-**	**-**	***6.732***	**-**	**-**	***6.724***	**-**	**-**	***0.000***	**-**	**-**	***6.724***
Hardware - SH920 NON-RECURRING Cost																		
Non Recurring Cost																		
4.1.1) Ordnance Assembly	-	-	0.115	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
4.1.2) Ordnance Transport (14)	-	-	2.931	-	-	0.134	-	-	0.150	-	-	0.000	-	-	0.000	-	-	0.000
4.1.3) Ordnance Loading (15)	-	-	2.625	-	-	0.100	-	-	0.150	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*5.671*	-	-	*0.234*	-	-	*0.300*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - SH920 NON-RECURRING Cost	**-**	**-**	***5.671***	**-**	**-**	***0.234***	**-**	**-**	***0.300***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - SH010 ECP Cost																		
Recurring Cost																		
5.1.1) Ordnance Transport ECP	-	-	2.463	-	-	0.070	-	-	0.120	-	-	0.136	-	-	0.000	-	-	0.136
5.1.2) Ordnance Loading ECP	-	-	0.405	-	-	0.072	-	-	0.140	-	-	0.213	-	-	0.000	-	-	0.213
Subtotal: Recurring Cost	-	-	*2.868*	-	-	*0.142*	-	-	*0.260*	-	-	*0.349*	-	-	*0.000*	-	-	*0.349*
Subtotal: Hardware - SH010 ECP Cost	**-**	**-**	***2.868***	**-**	**-**	***0.142***	**-**	**-**	***0.260***	**-**	**-**	***0.349***	**-**	**-**	***0.000***	**-**	**-**	***0.349***
Hardware - SH860 Acceptance Test & Eval Cost																		
Recurring Cost																		
6.1.1) Ordnance Assembly Acceptance Testing	-	-	0.109	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 2 / Acft Rearming Equip
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
6.1.2) Ordnance Transport Acceptance Testing	-	-	0.920	-	-	0.200	-	-	0.242	-	-	0.212	-	-	0.000	-	-	0.212
6.1.3) Ordnance Loading Acceptance Testing	-	-	1.115	-	-	0.198	-	-	0.197	-	-	0.206	-	-	0.000	-	-	0.206
Subtotal: Recurring Cost	-	-	*2.144*	-	-	*0.398*	-	-	*0.439*	-	-	*0.418*	-	-	*0.000*	-	-	*0.418*
Subtotal: Hardware - SH860 Acceptance Test & Eval Cost	**-**	**-**	***2.144***	**-**	**-**	***0.398***	**-**	**-**	***0.439***	**-**	**-**	***0.418***	**-**	**-**	***0.000***	**-**	**-**	***0.418***
Support - SH800 ILS Cost																		
7.1) Ordnance Assembly	-	-	0.286	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
7.2) Ordnance Transport	-	-	0.937	-	-	0.109	-	-	0.236	-	-	0.227	-	-	0.000	-	-	0.227
7.3) Ordnance Loading	-	-	1.466	-	-	0.209	-	-	0.208	-	-	0.247	-	-	0.000	-	-	0.247
Subtotal: Support - SH800 ILS Cost	**-**	**-**	***2.689***	**-**	**-**	***0.318***	**-**	**-**	***0.444***	**-**	**-**	***0.474***	**-**	**-**	***0.000***	**-**	**-**	***0.474***
Support - SH830 Production Engineering Cost																		
8.1) Ordnance Assembly PE	-	-	0.697	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
8.2) Ordnance Transport PE	-	-	1.375	-	-	0.267	-	-	0.256	-	-	0.279	-	-	0.000	-	-	0.279
8.3) Ordnance Loading PE	-	-	1.573	-	-	0.271	-	-	0.256	-	-	0.279	-	-	0.000	-	-	0.279
Subtotal: Support - SH830 Production Engineering Cost	**-**	**-**	***3.645***	**-**	**-**	***0.538***	**-**	**-**	***0.512***	**-**	**-**	***0.558***	**-**	**-**	***0.000***	**-**	**-**	***0.558***
Gross/Weapon System Cost	**-**	**-**	**58.267**	**-**	**-**	**12.058**	**-**	**-**	**10.514**	**-**	**-**	**12.259**	**-**	**-**	**0.000**	**-**	**-**	**12.259**

(†) indicates the presence of a P-5a

Footnotes:

(11) CILOP kits consist of two parts (component kits and wheel kits). Unit cost is based on step ladder pricing and fluctuates based on quantity purchased. Kits will be fully delivered in FY22.

(12) Quantity was reduced from 80 to 15 due to FY20 being a testing year due to contract delay. Available funding only allowed for the purchase of 15 units. The initial estimate/unit cost of the MHU-230 was $20K. In DEC of 2019 we received an update from the contractor reflecting a unit cost of $17K/unit starting in FY22.

(13) Unit cost fluctuations are due to step-ladder pricing on the current contract. A/S32K-1E WEAPONS LOADER REPLACEMENT - (MHU-83) additional units procured in FY19 and FY21. Required inventory is 256. Due to an error in the SERMIS system, the required quantity was inadvertently indicated as 230. The error has been corrected and required inventory updated to 256

(14) Final installation of MHU-191 kits will be performed in FY23.

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Item Number / Title [DODIC]:** 2 / Acft Rearming Equip
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(15) FY19 funding was used to support an urgent fleet need for Linkless Ammunition Loading System (LALS) load gates. Load gates were failing at a rate that degraded readiness and an upgraded load gate was required to address the issue.

Exhibit P-5a, Procurement History and Planning: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 2 / Acft Rearming Equip

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
2.1.2) SH043 - MHU-191/M CILOP - MHU-191A/M MUN TRANSPORTER		2020	DEVAL CORPORATION / PHILADELPHIA, PA	C / FFP	NAWCADLKE	Jan 2020	Aug 2020	706	6,208.21	Y		Jun 2011
2.1.2) SH043 - MHU-191/M CILOP - MHU-191A/M MUN TRANSPORTER		2021	DEVAL CORPORATION / PHILADELPHIA, PA	C / FFP	NAWCADLKE	Apr 2021	Nov 2021	312	5,855.76	Y		Oct 2019
2.1.2) SH043 - MHU-191/M CILOP - MHU-191A/M MUN TRANSPORTER		2022	DEVAL CORPORATION / PHILADELPHIA, PA	C / FFP	NAWCADLKE	Apr 2022	Nov 2022	246	6,756.48	Y		Oct 2019
2.1.3) SH045 - MHU-126/202 TRLR REPLACEMENT - (MHU-230/M)		2020 (16)	CHOCTAW DEFENSE / McALESTER, OK	C / FFP	NAWCADLKE	Oct 2019	Jul 2020	15	34,000.00	Y		Mar 2018
2.1.3) SH045 - MHU-126/202 TRLR REPLACEMENT - (MHU-230/M)		2022	CHOCTAW DEFENSE / McALESTER, OK	C / FFP	NAWCADLKE	Jan 2022	Oct 2022	122	17,000.00	Y		Nov 2020
3.1.1) SH046 - USMC A/ S32K-1E WEAPONS LOADER REPLACEMENT(†)		2020	HYDRAULICS INTERNATIONAL INC / CALABASAS CA	C / FFP	NAWCADLKE	Jan 2020	Dec 2020	39	141,923.00	Y		Mar 2018
3.1.1) SH046 - USMC A/ S32K-1E WEAPONS LOADER REPLACEMENT(†)		2021	HYDRAULICS INTERNATIONAL INC / CALABASAS CA	C / FFP	NAWCADLKE	Oct 2020	Aug 2021	47	143,234.00	Y		
3.1.1) SH046 - USMC A/ S32K-1E WEAPONS LOADER REPLACEMENT(†)		2022	HYDRAULICS INTERNATIONAL INC / CALABASAS CA	C / FFP	NAWCADLKE	Oct 2021	Aug 2022	46	146,179.00	Y		

(†) indicates the presence of a P-21

Footnotes:

(16) FY20 was a skip year for testing of four Pre-Production Units (PPUs).

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Item Number / Title [DODIC]:** 2 / Acft Rearming Equip

Cost Elements (Units in Each)							Fiscal Year 2020												Fiscal Year 2021												BALANCE
										Calendar Year 2020														Calendar Year 2021									
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
3.1.1) SH046 - USMC A/S32K-1E WEAPONS LOADER REPLACEMENT [13]																															
Prior Years Deliveries: 54																															
	1	2020	NAVY	39	0	39				A -	-	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5	5	4			0
	1	2021	NAVY	47	0	47													A -	-	-	-	-	-	-	-	-	-	4	4	39
	1	2022	NAVY	46	0	46																									46
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Item Number / Title [DODIC]:** 2 / Acft Rearming Equip

Cost Elements (Units in Each)							Fiscal Year 2022												Fiscal Year 2023												BALANCE
							Calendar Year 2022												Calendar Year 2023													
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
3.1.1) SH046 - USMC A/S32K-1E WEAPONS LOADER REPLACEMENT [13]																															
Prior Years Deliveries: 54																															
	1	2020	NAVY	39	39	0																									0
	1	2021	NAVY	47	8	39	4	4	4	4	4	4	4	4	4	3															0
	1	2022	NAVY	46	0	46	A -	-	-	-	-	-	-	-	-	-	3	4	4	4	4	4	4	4	4	4	4	3			0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Item Number / Title [DODIC]:** 2 / Acft Rearming Equip

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2022	1-8-5 For 2022	MAX For 2022	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	HYDRAULICS INTERNATIONAL INC - CALABASAS CA	5	10	48	0	0	7	7	0	0	6	6

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
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ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	165.578	52.047	49.065	61.747	0.000	61.747
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	165.578	52.047	49.065	61.747	0.000	61.747
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**165.578**	**52.047**	**49.065**	**61.747**	**0.000**	**61.747**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - SJ040 - Service Change Kits Cost																		
Recurring Cost																		
1.1.1) Information Systems (SJ040) [17]	-	-	11.314	-	-	2.825	-	-	3.052	-	-	0.875	-	-	0.000	-	-	0.875
1.1.2) Visual Landing Aids (SJ040) [18]	-	-	17.816	-	-	1.751	-	-	6.125	-	-	1.807	-	-	0.000	-	-	1.807
1.1.3) Launcher (SJ040) [19]	-	-	3.471	-	-	1.125	-	-	3.484	-	-	1.027	-	-	0.000	-	-	1.027
1.1.4) Recovery (SJ040) [20]	-	-	17.178	-	-	4.678	-	-	2.658	-	-	5.570	-	-	0.000	-	-	5.570
1.1.5) SLMP [21]	-	-	0.000	-	-	4.173	-	-	2.692	-	-	3.653	-	-	0.000	-	-	3.653
1.1.6) ALLE [22]	-	-	1.035	-	-	0.000	-	-	1.519	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*50.814*	-	-	*14.552*	-	-	*19.530*	-	-	*12.932*	-	-	*0.000*	-	-	*12.932*
Subtotal: Hardware - SJ040 - Service Change Kits Cost	**-**	**-**	***50.814***	**-**	**-**	***14.552***	**-**	**-**	***19.530***	**-**	**-**	***12.932***	**-**	**-**	***0.000***	**-**	**-**	***12.932***
Hardware - - SJ305 - Non-Recurring Engineering Cost																		
Non Recurring Cost																		
2.1.1) Information Systems - NRE [23]	-	-	15.787	-	-	0.192	-	-	1.393	-	-	0.896	-	-	0.000	-	-	0.896
2.1.2) Visual Landing Aids [24]	-	-	20.287	-	-	5.856	-	-	6.320	-	-	4.442	-	-	0.000	-	-	4.442
2.1.3) Launcher [25]	-	-	5.622	-	-	1.978	-	-	0.392	-	-	1.075	-	-	0.000	-	-	1.075

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
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ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
2.1.4) Recovery [26]	-	-	15.193	-	-	10.288	-	-	2.168	-	-	4.689	-	-	0.000	-	-	4.689
2.1.5) ALLE	-	-	2.500	-	-	6.235	-	-	4.908	-	-	4.844	-	-	0.000	-	-	4.844
2.1.6) ADMACS [27]	-	-	0.000	-	-	0.000	-	-	0.000	-	-	1.987	-	-	0.000	-	-	1.987
Subtotal: Non Recurring Cost	-	-	*59.389*	-	-	*24.549*	-	-	*15.181*	-	-	*17.933*	-	-	*0.000*	-	-	*17.933*
Subtotal: Hardware - - SJ305 - Non-Recurring Engineering Cost	**-**	**-**	***59.389***	**-**	**-**	***24.549***	**-**	**-**	***15.181***	**-**	**-**	***17.933***	**-**	**-**	***0.000***	**-**	**-**	***17.933***
Software - Product Improvement Cost																		
Recurring Cost																		
3.1.1) ADMACS [28]	-	-	0.000	-	-	0.000	-	-	0.000	-	-	14.902	-	-	0.000	-	-	14.902
Subtotal: Recurring Cost	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*14.902*	-	-	*0.000*	-	-	*14.902*
Subtotal: Software - Product Improvement Cost	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***14.902***	**-**	**-**	***0.000***	**-**	**-**	***14.902***
Support - SJ800 - Integrated Logistics Cost																		
4.1) Information Systems [29]	-	-	2.435	-	-	0.135	-	-	0.502	-	-	0.362	-	-	0.000	-	-	0.362
4.2) Visual Landing Aids [30]	-	-	1.900	-	-	0.934	-	-	0.686	-	-	0.163	-	-	0.000	-	-	0.163
4.3) Launcher [31]	-	-	0.853	-	-	0.337	-	-	0.117	-	-	0.280	-	-	0.000	-	-	0.280
4.4) Recovery	-	-	3.241	-	-	1.046	-	-	0.749	-	-	0.334	-	-	0.000	-	-	0.334
4.5) SLMP	-	-	0.000	-	-	0.019	-	-	0.044	-	-	0.059	-	-	0.000	-	-	0.059
4.6) ALLE [32]	-	-	0.634	-	-	0.250	-	-	0.177	-	-	0.217	-	-	0.000	-	-	0.217
4.7) ADMACS	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.442	-	-	0.000	-	-	0.442
Subtotal: Support - SJ800 - Integrated Logistics Cost	**-**	**-**	***9.063***	**-**	**-**	***2.721***	**-**	**-**	***2.275***	**-**	**-**	***1.857***	**-**	**-**	***0.000***	**-**	**-**	***1.857***
Support - SJ830 - Production Engineering Cost																		
5.1) Information Systems [33]	-	-	5.231	-	-	0.298	-	-	0.407	-	-	0.236	-	-	0.000	-	-	0.236
5.2) Visual Landing Aids [34]	-	-	7.460	-	-	0.823	-	-	0.973	-	-	0.720	-	-	0.000	-	-	0.720
5.3) Launcher [35]	-	-	1.566	-	-	0.350	-	-	0.226	-	-	0.404	-	-	0.000	-	-	0.404
5.4) Recovery	-	-	5.593	-	-	0.972	-	-	0.902	-	-	0.294	-	-	0.000	-	-	0.294
5.5) SLMP	-	-	0.000	-	-	0.083	-	-	0.071	-	-	0.054	-	-	0.000	-	-	0.054
5.6) ALLE [36]	-	-	0.707	-	-	0.882	-	-	0.766	-	-	0.422	-	-	0.000	-	-	0.422

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Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
5.7) ADMACS (37)	-	-	0.000	-	-	0.000	-	-	0.000	-	-	2.122	-	-	0.000	-	-	2.122
Subtotal: Support - SJ830 - Production Engineering Cost	**-**	**-**	***20.557***	**-**	**-**	***3.408***	**-**	**-**	***3.345***	**-**	**-**	***4.252***	**-**	**-**	***0.000***	**-**	**-**	***4.252***
Support - SJ900 - Installation -NonFMP Cost																		
6.1) Information Systems (38)	-	-	0.992	-	-	0.098	-	-	0.000	-	-	0.129	-	-	0.000	-	-	0.129
6.2) Visual Landing Aids	-	-	0.457	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
6.4) Recovery (39)	-	-	0.177	-	-	0.000	-	-	0.000	-	-	0.076	-	-	0.000	-	-	0.076
Subtotal: Support - SJ900 - Installation -NonFMP Cost	**-**	**-**	***1.626***	**-**	**-**	***0.098***	**-**	**-**	***0.000***	**-**	**-**	***0.205***	**-**	**-**	***0.000***	**-**	**-**	***0.205***
Support - SJ910 - Installation -FMP Cost																		
7.1) Information Systems (40)	-	-	6.557	-	-	1.959	-	-	3.669	-	-	3.325	-	-	0.000	-	-	3.325
7.2) Visual Landing Aids (41)	-	-	7.592	-	-	2.421	-	-	1.941	-	-	1.114	-	-	0.000	-	-	1.114
7.3) Launcher (42)	-	-	3.213	-	-	0.362	-	-	1.061	-	-	2.227	-	-	0.000	-	-	2.227
7.4) Recovery (43)	-	-	6.653	-	-	1.977	-	-	1.963	-	-	0.990	-	-	0.000	-	-	0.990
7.5) SLMP (44)	-	-	0.000	-	-	0.000	-	-	0.100	-	-	0.732	-	-	0.000	-	-	0.732
7.6) ALLE	-	-	0.114	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
7.7) ADMACS (45)	-	-	0.000	-	-	0.000	-	-	0.000	-	-	1.278	-	-	0.000	-	-	1.278
Subtotal: Support - SJ910 - Installation -FMP Cost	**-**	**-**	***24.129***	**-**	**-**	***6.719***	**-**	**-**	***8.734***	**-**	**-**	***9.666***	**-**	**-**	***0.000***	**-**	**-**	***9.666***
Gross/Weapon System Cost	**-**	**-**	**165.578**	**-**	**-**	**52.047**	**-**	**-**	**49.065**	**-**	**-**	**61.747**	**-**	**-**	**0.000**	**-**	**-**	**61.747**

Remarks:

[Hardware/Recurring] The recurring hardware funding shown is a combination of many planned hardware upgrades to a variety of Aircraft Launch and Recovery Systems and to a variety of ships/classes including Carrier Vessel Nuclear (CVNs), Amphibious Assault Ships (AAS), and Air Capable Ships (ACS), which include various unit costs/quantities for differing fiscal years. As such, hardware recurring costs will vary significantly year to year and within each item.

[Hardware/Non-Recurring] Non-Recurring Engineering (NRE) costs are associated with system modification, upgrade analysis, verification and regression testing, tooling, logistics and associated NRE of hardware or software Engineering Changes.

[Support Cost] (Support Cost) Integrated Logistics Support costs are associated with the non-level of effort (organic) labor at NAWCAD Lakehurst directly supporting the manufacture of hardware, assembly kits and installation kits for many of the service changes.

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[Support Cost] Installation Support:
1. Installations are subject to change with ship availability schedules.
2. The year-to-year unit installations costs will vary and can exceed the projected yearly inflation rate due to the hardware installation cost being dependent on quantity and location of the ship (i.e. Norfolk, Japan), ship class (DDG, ACS, AAS, CVN), and the ships baseline configuration.
3. Production lead time includes pre-installation checkout, kitting with other installation hardware and drawings, and time to ship the hardware to the installation site.

Footnotes:

(17) C.E. 1.1.1 Information Systems: Decrease in costs from FY21 to FY22 due to deferral of ALRE Maintenance Laptop (AML) procurement.

(18) C.E. 1.1.2 Visual Landing Aids: The decrease in cost from FY21 to FY22 is due to fewer kit procurements in FY22. Improved Manually Operated Visual Landing Aid System (IMOVLAS) procurement quantity decreased from 7 in FY21 to 3 in FY22.

(19) C.E. 1.1.3 Launcher: Decrease in costs in FY22 is due to the cancellation of two Launcher ECPs: 1) Water brake PMS without Water, and 2) Improved Nose Gear Launch (NGL) deck tensioner.

(20) 1.1.4 Recovery: C.E. 1.1.4 Recovery: Increased cost from FY21 to FY22 are kit procurements for Compact Swaging Machine (CSM), Main Engine Cylinder (MEC) Packing redesign, Mark 7 Accumulator Floating Piston redesign, and Advanced Recovery Control (ARC) Retract Control Valve (RCV) redesign ECPs. Recovery systems include Mk-7 Arresting, Advanced Recovery Control (ARC), Barricade, Compact Swaging Machine (CSM), Recovery Assist Securing and Traversing (RAST) and Aircraft Ship Integrated Secure and Traverse (ASIST).

(21) C.E. 1.1.5 Service Life Management Program (SLMP): Increase in costs from FY21 to FY22 is due to the procurement of MK-7 Crosshead and MK-7 Fixed Sheave. If the Crosshead ECP is not completed, then separation of the flange from the body could occur during a retract and down the arresting engine until a depot repair team could arrive and perform the repair, which would be a major loss to readiness and system availability. If the Fixed Sheave ECP is not completed, then separation of the front plate could occur during a retract and down the arresting engine until a depot repair team could arrive and perform the repair, which is a major loss to readiness and system availability.

(22) C.E. 1.1.6 Aviation Land and Launch Enclave (ALLE): Decrease in cost from FY21 to FY22 is due to deferring kit buys for ADMACS ECP-530 from FY22 to FY23 to complete Systems Requirement Review (SRR) before kit procurement.

(23) C.E. 3.1.1 Information Systems: The decrease in cost from FY21 to FY22 is due to fewer non-recurring engineering tasks required in FY22 for LSODS ECP to upgrade the operating system and software patches and due to the completion of the MWS modification to the Wind Processor Unit for CVN shock deficiency in FY21.

(24) C.E. 2.1.2 Visual Landing Aids: Decrease in costs in FY22 is due the cancellation of the Improved Fresnel Lens Optical Landing System (IFLOLS) Phase V Light Emitting Diode (LED) Replacement ECP. This ECP was planned to increase long term support of IFLOLS due to obsolete lighting technology and critical hardware.

(25) C.E. 2.1.3 Launcher: Increase in cost from FY21 to FY22 is due to JSF JBD upgrades ECP. This ECP incorporates upgrades to the Jet Blast Deflectors (JBDs) so the JSF is able to be launched at the ABLIM thrust rating (full engine power) without JBD restrictions.

(26) C.E. 2.1.4 Recovery: Increase in FY22 costs due to rephasing of the Main Engine Cylinder (MEC) Packing Redesign ECP into FY22.

(27) C.E. 3.1.6 - This budget element was reclassified from P-3a cost element 2.2.1 "Block II System Release Upgrade - NonOrganic" to P-5 cost element 3.1.6 (Non Recurring Costs). This cost element is for non-recurring engineering efforts for hardware (HW) and software (SW) obsolescence and integration, HW and SW improvement, and cybersecurity compliance. Some funds from P-3a cost elements 2.2.2 (Hardware Obsolescence ECPs NRE), 2.2.3 (Cybersecurity ECPs NRE) and 2.2.4 (Systems SW Build Integration - Organic) were realigned to P-5 cost element 3.1.6 (Non Recurring Costs) for more concise reporting. Increase in cost from FY21 to FY22 is for an ECP to address hardware obsolescence for the CVN 80/81 configuration and for an ECP to implement Aircraft Launch and Recovery Equipment Information Technology (ALRE IT) Vision, Increments 2A and 4A. The ALRE IT Vision ECP implements a more modular open architecture design for current IT products (such as ADMACS, Moriah Wind System, and LSODS), expanded connectivity, data capture, and ship EXCOM reach-back support for more cost effective capability and sustainment.

(28) Product Improvement C.E. 2.1.1 This budget element reflects the completion of a common configuration strategy and transition to a software intensive upgrade strategy. ADMACS requires a constant upgrade path to ensure interoperability between over a dozen CVN systems, meet cyber security mandates, avoid costly retrofits of fielded systems, and ensure interoperability between tightly coupled COTS software applications, operating systems, and hardware processing nodes. Consequently, product improvement resources are required to comply with evolving security compliance requirements that necessitate a more frequent update cycle to combat obsolescence and adhere to commercial hardware/software supportability mandates. Funds were realigned in FY21 through FY26 from P-3a cost elements 2.2.1 (Block II System Release Upgrade), 2.2.2 (Hardware Obsolescence ECPs NRE), 2.2.3 (Cybersecurity ECPs NRE), and 2.2.4 (Systems SW Build Integration) to P-5 cost element 2.1.1 (Product Improvement) to more accurately classify the planned upgrades for ADMACS. Increase in Product Improvement from FY21 to FY22 is for the addition of Aviation Weapons Information Management System / Ordnance Information System (AWIMS/OIS) Interface to the network; Aircraft Launch and Recovery Equipment Information Technology (ALRE IT) Vision Increments 1 and 2; and hardware obsolescence for CVN 80/CVN

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81 configuration. The ALRE IT Vision ECP implements a more modular open architecture design for current IT products (such as ADMACS, Moriah Wind System, and LSODS), expanded connectivity, data capture, and ship EXCOM reach-back support for more cost effective capability and sustainment.

(29) C.E. 4.1 Information Systems. The decrease in cost from FY21 to FY22 is due to the completion of work on logistics products required to support Moriah Wind Systems (MWS) kit procurement and installation on ship LHD 5.

(30) C.E. 4.2 Visual Landing Aids: Decreased cost from FY21 to FY22 is due to finalizing work requirement on logistics documents for two ECPs: Landbased Improved Manually Operated Visual Landing Aid System (IMOVLAS) and Landbased Optical Landing Aid (LOLA).

(31) C.E. 4.3 Launcher: Increase in integrated logistics costs from FY21 to FY22 is due to the JSF Jet Blast Deflectors (JBDs) ECP.

(32) C.E. 4.6 Aviation Land and Launch Enclave (ALLE): Increase in cost from FY21 to FY22 is due to increased work on logistics products in support of ECPs to add Advanced Arresting Gear (AAG) and Improved Fresnel Lens Optical Landing System (IFLOLS) to the ALLE cyber enclave.

(33) C.E. 5.1 Information Systems: The decrease in cost from FY21 to FY22 is due to the completion of production engineering tasking to support the Moriah Wind System (MWS) procurement for ship LHD 5.

(34) C.E. 5.2 Visual Landing Aids: Decrease in costs from FY21 to FY22 is due to rephasing of the Improved Manually Operated Visual Landing Aid System (IMOVLAS) upgrade to Shipboard Manually Operated Visual Landing Aid System (MOVLAS) ECP (ECP-I-VLA-0442.

(35) C.E. 5.3 Launcher: Increase in production engineering cost from FY21 to FY22 is due to the JSF Jet Blast Deflectors (JBDs) ECP.

(36) C.E. 4.6 ALLE: Support cost decreased from FY21 to FY22 due to efficiencies associated with implementing the cyber ECPs in increments. Cost increases from FY22 to FY23 are for support associated with ECP-530 Aviation Data Management & Control System (ADMACS) event monitoring/network authentication.

(37) C.E. 5.7 - Costs moved from P-3a cost element 3.2 (Support - Production Engineering) to P-5 cost element 5.7 (Production Engineering). Increased cost in Production Engineering from FY21 to FY22 is for multiple ECPs: Aviation Weapons Information Management System / Ordnance Information System (AWIMS/OIS) Interface; Hardware obsolescence for the CVN 80/81 configuration; Aircraft Launch and Recovery Equipment Information Technology (ALRE IT) Vision; and ECP 0529 for ADMACS software and firmware obsolescence. If ECPs are not implemented, then ADMACS will not be able to comply with frequent update cycles to combat obsolescence, comply with cybersecurity mandates, and avoid costly retrofits. This will reduce readiness and cyber resiliency, impacting not only ADMACS operations but also full functionality of interfaced systems that rely on the ADMACS network, thus jeopardizing accurate and timely data that provide functionality and management of CVN flight operations.

(38) C.E. 6.1 Information Systems: The increase in cost from FY21 to FY22 is due to zero Non-FMP installs in FY21, but one install in FY22 for a lab.

(39) C.E. 6.4 Recovery: The increase in cost from FY21 to FY22 is for the installation of Compact Swaging Machine (CSM) at Patuxent River.

(40) C.E. 7.1 Information Systems: The decrease in cost from FY21 to FY22 is due to decreased installs for ECP-500 Moriah Cyber Enclave; from quantity of 4 in FY21 to quantity of 3 in FY22.

(41) C.E. 7.2 Visual Landing Aids: Fluctuation of install costs reflects various unit costs/quantities for differing fiscal years for several VLA systems, rendering unit cost indistinct and causing install cost to vary significantly from year to year.

(42) C.E. 7.3 Launcher: The increase from FY21 to FY22 is for installs of Joint Strike Fighter (JSF) Jet Blast Deflectors (JBD) on CVN 70. Joint Strike Fighters deployed in FY15 and require numerous Carrier modifications, including JBD panels, due to the excessive heat generated by the JSF aircraft engine. If JSF JBDs are not installed, then JSF aircraft will not be able to launch from any CVN without the panels.

(43) C.E. 7.4 Recovery: Decrease in cost from FY21 to FY22 is due to fewer Compact Swaging Machine (CSM) installs required in FY22; from 7 installs for CVN 69, CVN 71, CVN 78, and Lakehurst in FY21 to 3 installs required for CVN 75 and Patuxent River in FY22.

(44) C.E. 7.5 SLMP: The increase from FY21 to FY22 is for 3 installs of Fixed Sheave (ECP-0366) and 3 installs of Crosshead (ECP-0365), two critical safety installs for the Mk-7 Arresting Gear system onboard CVNs. If these installs do not happen, then MK-7 Engine Crossheads and Fixed Sheaves will continue to be prone to cracking due to deformation experienced during high energy arrestments, which is a safety and readiness issue for carrier aircraft recovery.

(45) C.E. 7.7 - Install costs moved from the P-3a exhibit to the P-5 exhibit, cost element 7.7 (Installation - FMP Cost). Costs decreased from FY21 to FY22 due to fewer installs required in FY22; from 7 installs in FY21 (CVNs 69, 71, 72, 75, 76, 77, 78) to 5 installs in FY22 (CVNs 69, 70, 71, 75, 78). ADMACS Installations - System Release Upgrade installs occur once a year for 3 or more CVNs. System Release Upgrades addresses software, cybersecurity, and obsolescence, and installs on CVNs available when an update is complete and ready for release. Unit cost varies from ship to ship and across years due to the individual ship and length of ship availability, since ADMACS software generated is unique to an individual ship to accommodate ship specific spaces (i.e. magazines are mapped to an individual ship's layout). Install schedule is determined by the timeframe constraints of each ship's availability, plus the unique modification of software for those ships, and coordination of installs for multiple ships available in that year.

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Item Number / Title [DODIC]:** 3 / Air Launch & Recovery Equip
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

The time from procurement to installation varies due to: 1) constantly shifting CVN availabilities, and 2) the need to bundle procurements of several kits and do obsolescence upgrade ECPs for each bundle. ADMACS installation requires at least a 6 month ship availability.

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Item Number / Title [DODIC]: 4 / Natural Disaster Recovery
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.000	39.295	50.871	64.674	0.000	64.674
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.000	39.295	50.871	64.674	0.000	64.674
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.000**	**39.295**	**50.871**	**64.674**	**0.000**	**64.674**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Support - SJ307- Natural Disaster Recovery Support Equipment Cost																		
1.1) Propulsion Lab Support Equipment [46]	-	-	0.000	-	-	6.788	-	-	16.533	-	-	54.053	-	-	0.000	-	-	54.053
1.2) Initial Building Outfitting [47]	-	-	0.000	-	-	0.000	-	-	0.000	-	-	6.863	-	-	0.000	-	-	6.863
1.3) Peculiar Aviation Support Equipment [48]	-	-	0.000	-	-	32.507	-	-	34.338	-	-	3.758	-	-	0.000	-	-	3.758
Subtotal: Support - SJ307- Natural Disaster Recovery Support Equipment Cost	**-**	**-**	***0.000***	**-**	**-**	***39.295***	**-**	**-**	***50.871***	**-**	**-**	***64.674***	**-**	**-**	***0.000***	**-**	**-**	***64.674***
Gross/Weapon System Cost	**-**	**-**	**0.000**	**-**	**-**	**39.295**	**-**	**-**	**50.871**	**-**	**-**	**64.674**	**-**	**-**	**0.000**	**-**	**-**	**64.674**

Footnotes:

[46] C.E 1.1 Propulsion Lab Support Equipment: Funds are required for recalibration, repair, and updates associated with synthesis and formulation, combustion science, mass properties, energetics, and test capabilities. These requirements include but are not limited to the following: optical microscopes, pad fixtures, instrument spectrometers, microscopes, optical components and gas turbines required to restore mission capability.

[47] C.E 1.2 Initial Building Outfitting: funds the complement of support items required to make the new facilities damaged or destroyed as a result of the natural disaster complete and ready to operate.

[48] C.E 1.3 Peculiar Aviation Support Equipment: Funds required to replace, repair, and update required Class 3 peculiar aviation support equipment. These requirements include but are not limited to spectrum analyzers, electrodynamic shakers, data acquisition units, molding machines, XRAY machines, laser cutters and water jet systems required to restore mission capability.

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 1 / ALRE - Advanced Arresting Gear (SJ301)
ID Code (A=Service Ready, B=Not Service Ready) :		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	15.574	0.000	0.000	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	15.574	0.000	0.000	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**15.574**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Description:

Advanced Arresting Gear (AAG) will replace the legacy Mark 7 arresting gear aboard Ford class aircraft carriers. AAG will provide the U.S. Navy with the ability to recover existing and projected aircraft carrier based
air vehicles well into the 21st century. AAG will provide increased operational availability, while reducing manning, maintenance and support costs.

FY 2014 and prior funded under Aircraft Support Equipment (BLI 4216). FY 2018 and out funded under Advanced Arresting Gear (AAG) (BLI 4217) for OSD MDAP Transparency.

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 1 / ALRE - Advanced Arresting Gear (SJ301)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: MK-7 Legacy - Shorebased	**Modification Type:** Advanced Arresting Gear (SJ301)	**Related RDT&E PEs:** 0604512N, 0604530N

Financial Plan	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement						
Modification Item 1 of 1: ALRE - Advanced Arresting Gear (SJ301)						
B Kits						
Non-Recurring						
1.1.1) Non-Recurring Engineering - Organic [49]	- / 8.173	- / -	- / -	- / -	- / -	- / -
1.1.2) Data - Organic - Organic	- / 2.982	- / -	- / -	- / -	- / -	- / -
Subtotal: Non-Recurring	- / *11.155*	- / -	- / -	- / -	- / -	- / -
Subtotal: ALRE - Advanced Arresting Gear (SJ301)	- / *11.155*	- / -	- / -	- / -	- / -	- / -
Subtotal: Procurement, All Modification Items	- / *11.155*	- / -	- / -	- / -	- / -	- / -
Support *(All Modification Items)*						
2.1) ILS	- / 0.980	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
2.2) PE	- / 3.439	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
Subtotal: Support	- / *4.419*	- / -	- / -	- / -	- / -	- / -
Installation						
Subtotal: Installation	- / -	- / -	- / -	- / -	- / -	- / -
Total						
Total Cost (Procurement + Support + Installation)	**15.574**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 1 / ALRE - Advanced Arresting Gear (SJ301)
ID Code (A=Service Ready, B=Not Service Ready) :		**MDAP/MAIS Code:**
Modification Item 1 of 1: ALRE - Advanced Arresting Gear (SJ301)		

Footnotes:

(49) 1.2.1 - FY18 and out funded under Advanced Arresting Gear (AAG) (BLI 4217) for OSD MDAP Transparency.

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 2 / ALRE - ADMACS Block Upgrade (SJ302)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	123.643	19.378	15.596	2.397	0.000	2.397
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	123.643	19.378	15.596	2.397	0.000	2.397
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**123.643**	**19.378**	**15.596**	**2.397**	**0.000**	**2.397**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Description:

Beginning in FY22 the ADMACS program is utilizing the P-5 cost analysis budget exhibit to display the costs associated with a simple modification performed organically at the Organizational level.
The Aviation Data Management and Control System (ADMACS) is an integrated, network-centric, shipboard aviation operations information management system, which provides data required for aircraft carriers aviation operations planning, execution and readiness assessment. ADMACS communicates aviation and command related data elements across the ADMACS Local Area Network and Integrated Shipboard Network System that electronically displays
position and location of aircraft on the flight and hangar decks, status of aircraft, Aircraft Launch and Recovery Equipment, fuel, weapons types and quantity as well as a wide variety of other aviation related and ship information.

ADMACS transitions in FY 2021 from a common configuration effort to a system upgrade effort to address obsolescence and deficiencies. Efforts are heavily focused in a Product Improvement budget element to integrate software intensive field technical solutions, which vary in complexity and cost. ADMACS requires a constant upgrade path to ensure interoperability between over a dozen CVN systems, meet cyber security mandates, avoid costly retrofits of fielded systems, and ensure interoperability between tightly coupled COTS software applications, operating systems, and hardware processing nodes. Consequently, product improvement resources are required to comply with evolving security compliance requirements that necessitate a more frequent update cycle to combat obsolescence and adhere to commercial hardware/software supportability mandates. Given the constraints of Carrier availabilities, upgrades are planned based upon OPNAV controlled Carrier Availability Schedule. ADMACS deficiencies can be discovered during test through System Trouble Reports (STRs), in operation which can result from Casualty Reports (CASREPs), or in engineering investigations, hardware (HW) obsolescence or cybersecurity mandates as required by the Navy's Defense-in Depth Functional Implementation Architecture (DFIA) standard. ADMACS will executes technical solutions for cybersecurity patching, HW obsolescence, and the resolution of STRs through multiple ECPs, including ECP-0285 (software interface with EMALS and AAG on CVN 78), ECP-0493 (interface with technical refresh of LSODS), ECP-0529 (addresses software and firmware obsolescence), as well as several other critical ADMACS ECPs.

Background: The Milestone Decision Authority (MDA) approved the ADMACS Block (Blk) II program re-baseline in 2013. The ADMACS program experienced an MDA directed re-baseline due to software deficiencies found during final Developmental Testing (DT)/Shipboard testing and the resultant need to defer Initial Operational Test and Evaluation. The re-baselined program addressed DT identified software deficiencies as well as all outstanding Information Assurance (IA) requirements/mandates and will provide for necessary obsolescence upgrades on this largely Commercial-Off-The-Shelf system, which addresses long term supportability. The rebaseline targeted the Blk I ISNS ships first and then the remaining Blk I ships from an IA requirements perspective. The rebaselined program provided for a common configuration across Nimitz and Ford Class Carriers. The program rebaseline effort concluded with the completion of the CVN76 installation in FY 2020. FY 2014 and prior funded under Aircraft Support Equipment (BLI 4216)

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 2 / ALRE - ADMACS Block Upgrade (SJ302)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: ADMACS Block 2	**Modification Type:** Increase Capability	**Related RDT&E PEs:** 0604512N

Financial Plan	Prior Years Qty *(Each)* / Total Cost *($ M)*	FY 2020 Qty *(Each)* / Total Cost *($ M)*	FY 2021 Qty *(Each)* / Total Cost *($ M)*	FY 2022 Base Qty *(Each)* / Total Cost *($ M)*	FY 2022 OCO Qty *(Each)* / Total Cost *($ M)*	FY 2022 Total Qty *(Each)* / Total Cost *($ M)*
Procurement						
Modification Item 1 of 2: Block I and Block I/ISNS						
B Kits						
Recurring						
1.1.1) Blk I/ISNS Kits - (Full) - NonOrganic [50]	3 / 11.799	- / -	- / -	- / -	- / -	- / -
1.1.2) Hardware Obsolescence ECPs - Organic [51]	- / 7.125	- / -	- / -	- / -	- / -	- / -
1.1.3) Cybersecurity - Organic [52]	- / 8.647	- / -	- / -	- / -	- / -	- / -
1.1.4) Systems Integration & Installation - Organic [53]	- / 7.497	- / -	- / -	- / -	- / -	- / -
Subtotal: Recurring	*- / 35.068*	- / -	- / -	- / -	- / -	- / -
Subtotal: Block I and Block I/ISNS	*3 / 35.068*	- / -	- / -	- / -	- / -	- / -
Modification Item 2 of 2: Block II						
B Kits						
Recurring						
2.1.1) Hardware Obsolescence ECPs - NonOrganic [54]	- / 5.231	- / -	- / -	- / -	- / -	- / -
2.1.2) Cyber Security - Organic	- / 8.182	- / -	- / -	- / -	- / -	- / -
2.1.3) Systems Release Upgrade Kits - NonOrganic [55]	6 / 6.703	7 / 0.393	3 / 0.173	- / -	- / -	- / -
Subtotal: Recurring	*- / 20.116*	*- / 0.393*	*- / 0.173*	- / -	- / -	- / -
Non-Recurring						
2.2.1) Block II System Release Upgrade - NonOrganic	7 / 1.795	- / -	- / -	- / -	- / -	- / -
2.2.2) Hardware Obsolescence ECPs NRE - Organic	- / 6.599	- / 4.619	- / 2.951	- / -	- / -	- / -
2.2.3) Cybersecurity ECPs NRE - Organic	- / 6.464	- / 1.573	- / 2.177	- / -	- / -	- / -
2.2.4) Systems SW Build Integration - Organic	- / 0.453	- / 1.227	- / 1.733	- / -	- / -	- / -
Subtotal: Non-Recurring	*- / 15.311*	*- / 7.419*	*- / 6.861*	- / -	- / -	- / -
Subtotal: Block II	*13 / 35.427*	*7 / 7.812*	*3 / 7.034*	- / -	- / -	- / -
Subtotal: Procurement, All Modification Items	*- / 70.495*	*- / 7.812*	*- / 7.034*	- / -	- / -	- / -
Support *(All Modification Items)*						
3.1) ILS	- / 6.043	- / 1.810	- / 1.567	- / -	- / -	- / -
3.2) PE	- / 15.435	- / 1.593	- / 1.542	- / -	- / -	- / -
Subtotal: Support	*- / 21.478*	*- / 3.403*	*- / 3.109*	- / -	- / -	- / -
Installation						

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 2 / ALRE - ADMACS Block Upgrade (SJ302)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: ADMACS Block 2	**Modification Type:** Increase Capability	**Related RDT&E PEs:** 0604512N

Financial Plan	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Modification Item 1 of 2: Block I and Block I/ISNS	- / 22.999	- / 3.649	- / 0.000	- / 0.000	- / 0.000	- / 0.000
Modification Item 2 of 2: Block II	- / 8.671	- / 4.514	- / 5.453	- / 2.397	- / 0.000	- / 2.397
Subtotal: Installation	- / *31.670*	- / *8.163*	- / *5.453*	- / *2.397*	- / -	- / *2.397*
Total						
Total Cost (Procurement + Support + Installation)	**123.643**	**19.378**	**15.596**	**2.397**	**0.000**	**2.397**

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 2 / ALRE - ADMACS Block Upgrade (SJ302)

ID Code (A=Service Ready, B=Not Service Ready) : | **MDAP/MAIS Code:**

Modification Item 1 of 2: Block I and Block I/ISNS

Manufacturer Information

Manufacturer Name: Bowhead Manufacturing Technology - Blk I/ISNS Kits - (Full) (56)	Manufacturer Location: Plano, TX
Administrative Leadtime *(in Months)*: 2	Production Leadtime *(in Months)*: 11

Dates	FY 2020	FY 2021	FY 2022
Contract Dates			
Delivery Dates			

Installation Information

Method of Implementation: AIT:: Installation Name: Blk I/ISNS Kits - (Full)

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	3 / 22.999	0 / 3.649	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	3 / 22.999	0 / 3.649	- / -	- / -	- / -	- / -

Installation Schedule

		FY 2020				FY 2021				FY 2022			
	PYS	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	3	-	-	-	-	-	-	-	-	-	-	-	-
Out	2	-	-	1	-	-	-	-	-	-	-	-	-

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 2 / ALRE - ADMACS Block Upgrade (SJ302)

ID Code (A=Service Ready, B=Not Service Ready) : **MDAP/MAIS Code:**

Modification Item 2 of 2: Block II

Manufacturer Information

Manufacturer Name: Bowhead Manufacturing Technology - Blk II System Release Upgrade (57)	Manufacturer Location: Plano, TX
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 11

Dates	FY 2020	FY 2021	FY 2022
Contract Dates	Dec 2019		
Delivery Dates	Nov 2020		

Manufacturer Name: Bowhead Manufacturing Technology - System Release Upgrade (58)	Manufacturer Location: Plano, TX
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 6

Dates	FY 2020	FY 2021	FY 2022
Contract Dates	Dec 2019	Dec 2020	
Delivery Dates	Jun 2020	Jun 2021	

Installation Information

Method of Implementation: AIT:: Installation Name: Systems Release Upgrade Kits

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	6 / 4.514	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	7 / 5.453	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	3 / 2.397	0 / 0.000	3 / 2.397
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	6 / 4.514	7 / 5.453	3 / 2.397	0 / 0.000	3 / 2.397

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	3	1	2	2	3	-	2	1	-	-	2
Out	-	-	3	1	2	2	3	-	2	1	-	-	2

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 2 / ALRE - ADMACS Block Upgrade (SJ302)
ID Code (A=Service Ready, B=Not Service Ready) :		**MDAP/MAIS Code:**
Modification Item 2 of 2: Block II		

Installation Information

Method of Implementation: AIT:: Installation Name: Block II System Release Upgrade

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	7 / 8.671	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	7 / 8.671	- / -	- / -	- / -	- / -	- / -

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	7	-	-	-	-	-	-	-	-	-	-	-	-
Out	7	-	-	-	-	-	-	-	-	-	-	-	-

Footnotes:

(50) C.E. 1.1.1 - Budget element no longer necessary due to completion of effort to procure Block I and Block I/ISNS kits. All ADMACS systems are fully transitioned from Block I and Block I/ISNS to Block II on all CVNs.

(51) C.E. 1.1.2 - Budget element no longer necessary due to completion of effort to procure Block I and Block I/ISNS kits. All ADMACS systems are fully transitioned from Block I and Block I/ISNS to Block II on all CVNs.

(52) C.E. 1.1.3 - Budget element no longer necessary due to completion of effort to procure Block I and Block I/ISNS kits. All ADMACS systems are fully transitioned from Block I and Block I/ISNS to Block II on all CVNs.

(53) C.E. 1.1.4 - Budget element no longer necessary due to completion of effort to procure Block I and Block I/ISNS kits. All ADMACS systems are fully transitioned from Block I and Block I/ISNS to Block II on all CVNs.

(54) C.E. 2.1.1 - This budget element is reclassified from "Hardware Obsolescence ECPs - Non Organic" to "Hardware" on the P5 to more accurately reflect program strategy for sustainment.

(55) C.E. 2.1.3 - Beginning in FY22 this cost element has transitioned to C.E. 7.7 on the ALRE P-5 exhibit. The remaining installation costs in FY22 are required to install the FY21 procurement.

(56) The time from procurement to installation varies due to: 1) constantly shifting CVN availabilities, and 2) the need to bundle procurements of several kits and do obsolescence upgrade ECPs for each bundle. ADMACS installation requires at least a 6 month ship availability, however CVN76 is only available for 4 months in years before 2023. Due to the nature of the availability schedule of this forward deployed Carrier, three separate ship availabilities are required to complete the install aboard CVN76. Therefore, the installation for CVN76 must take place over 3 Carrier availabilities in FY 2018, FY 2019, and FY 2020. The higher cumulative cost associated with the CVN76 install in FY 2018 - FY 2020 is due to additional government labor, contract cost, modification work OCONUS in Japan, and administrative coordination for three availabilities rather than one. The CVN76 install quantity of 1 is shown in FY18 and a quantity of 0 is shown in FY 2019 and FY 2020.

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 2 / ALRE - ADMACS Block Upgrade (SJ302)
ID Code (A=Service Ready, B=Not Service Ready) :		**MDAP/MAIS Code:**

(57) The ADMACS program rebaseline effort concludes with the completion of the CVN76 installation in FY 2020 (Block I and Block I/ISNS install line). The program will transition from a common configuration effort to a system upgrade effort, with the first system release procurement occurring in FY18 and installing in FY19 (Block II install line). Costs are added to the Block II install line to show installs for the System Release Upgrade effort, which begins with 2 installs in FY 2019 and targets 3 carrier installs per year thereafter.

(58) System Release Upgrade installs occur once a year for 3 or more CVNs. System Release Upgrades addresses SW, cybersecurity, and obsolescence and installed on CVNs available when an update is complete and ready for release. Unit cost varies from ship to ship and across years due to the individual ship and length of ship availability, since ADMACS SW generated is unique to an individual ship to accommodate ship specific spaces (i.e. magazines are mapped to an individual ship's layout). The increase in install cost from FY 2020 to FY 2021 is due to an additional install, the timeframe constraints of each ship's availability, plus the unique modification of SW for those ships and coordination of installs for 7 ships in that year.

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	12.225	13.882	5.553	8.000	0.000	8.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	12.225	13.882	5.553	8.000	0.000	8.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**12.225**	**13.882**	**5.553**	**8.000**	**0.000**	**8.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Description:

Description:
The Electromagnetic Aircraft Launch System (EMALS) is replacing the C13 Steam Catapult System aboard Ford class carriers and is an advanced technology aircraft launch system which provides improved reliability and maintainability, reduced manning workload and increased operational availability.

FY 2022 funding is required for software/hardware procurements and updates to address emerging cyber security threats to maintain authority to operate (ATO), to modify the Transformer Rectifier Fuse Detection and Actuator to increase the reliability of the Transformer Rectifier, address critical hardware obsolescence for EMALS computers and servers and upgrade to WIN10 operating system, modification of Halfbridges for obsolescence and improve reliability, establish a block upgrade approach commencing with ECP Build E22, and continue with associated Non-Recurring Engineering (NRE) funding to support CVN-78 Engineering Change Proposals (ECPs).

The Build upgrades will provide the program more flexibility to address competing priorities of what become the most critical obsolescence, reliability, operational or safety upgrades in a given year. It also avoids multiple overlapping software releases and design rework. The block/build upgrades are categorized as follows: Obsolescence, Reliability Improvement upgrades, Operational Capability Improvements and Safety of Flight/Operations as well as the associated non-recurring engineering (NRE).

Notes for Installations:
1. Installations are subject to change with ship availability schedules.
2. The year-to-year unit installations costs will vary and can exceed the projected yearly inflation rate due to the hardware installation cost being dependent on quantity and location of the ship at the time of install, and the ship's
baseline configuration.
3. Production lead time includes pre-installation checkout, kitting with other installation hardware and drawings, and time to ship the hardware to the installation site.

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: C13-2 Steam Catapult	**Modification Type:** Reliability and Maintainability	**Related RDT&E PEs:** 0604112N

Financial Plan (*) Indicates the modification is being installed organically and no installation funds are required.	Prior Years Qty *(Each)* / Total Cost *($ M)*	FY 2020 Qty *(Each)* / Total Cost *($ M)*	FY 2021 Qty *(Each)* / Total Cost *($ M)*	FY 2022 Base Qty *(Each)* / Total Cost *($ M)*	FY 2022 OCO Qty *(Each)* / Total Cost *($ M)*	FY 2022 Total Qty *(Each)* / Total Cost *($ M)*
Procurement						
1.1.1) Transformer Rectifier Fuse Detection Actuator - NonOrganic (59) *Installation 1 of 10*	4 / 0.029	- / -	4 / 0.026	- / -	- / -	- / -
1.1.2) Position Sensor - NonOrganic *Installation 2 of 10*	5 / 2.261	- / -	- / -	- / -	- / -	- / -
1.1.3) Hardware Obsolescence - NonOrganic (60) *Installation 3 of 10*	- / -	- / -	8 / 0.351	- / -	- / -	- / -
1.1.4) Torsion Brake - NonOrganic *Installation 4 of 10*	14 / 0.187	- / -	- / -	- / -	- / -	- / -
1.1.5) Halfbridge Gate Driver and Fuse Terminal Block Redesign - NonOrganic (61) *Installation 5 of 10*	- / -	- / -	35 / 1.326	445 / 1.867	- / -	445 / 1.867
1.1.6) Sixnet Switches - NonOrganic (62) *Installation 6 of 10*	177 / 1.361	142 / 0.866	- / -	- / -	- / -	- / -
1.1.8) PC104 Hardware Obsolescence - NonOrganic (63) *Installation 7 of 10*	8 / 0.392	20 / 2.426	- / -	- / -	- / -	- / -
1.1.9) UIC 40 Urgent Obsolescence - NonOrganic (64) *Installation 8 of 10*	24 / 0.027	72 / 0.076	- / -	- / -	- / -	- / -
1.1.10) NGL Buffer and Tensioner - NonOrganic (65) *Installation 9 of 10*	- / -	9 / 0.086	- / -	- / -	- / -	- / -
1.1.11) PLC Urgent Obsolescence - NonOrganic (66) *Installation 10 of 10*	- / -	200 / 3.180	152 / 1.908	- / -	- / -	- / -
1.2.1) Non-Recurring Engineering - Organic(*) (67)	- / 6.359	- / 4.532	- / 1.078	- / -	- / -	- / -
2.2.1) Non-Recurring Engineering EMALSE22 Build - Organic(*) (68)	- / -	- / -	- / -	- / 4.585	- / -	- / 4.585
Subtotal: Procurement	*- / 10.616*	*- / 11.166*	*- / 4.689*	*- / 6.452*	*- / -*	*- / 6.452*
Support						
3.1) PE (69)	- / 0.761	- / 0.164	- / 0.025	- / 0.923	- / -	- / 0.923
3.2) ILS (70)	- / 0.691	- / 1.300	- / 0.249	- / 0.538	- / -	- / 0.538
Subtotal: Support	*- / 1.452*	*- / 1.464*	*- / 0.274*	*- / 1.461*	*- / -*	*- / 1.461*
Installation						
Installation 1 of 10: GRP: 1.1.1) Transformer Rectifier Fuse Detection Actuator	- / 0.028	- / -	- / 0.195	- / -	- / -	- / -
Installation 2 of 10: GRP: 1.1.2) Position Sensor	- / 0.101	- / -	- / -	- / -	- / -	- / -

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: C13-2 Steam Catapult	**Modification Type:** Reliability and Maintainability	**Related RDT&E PEs:** 0604112N

Financial Plan (*) Indicates the modification is being installed organically and no installation funds are required.	Prior Years Qty *(Each)* / Total Cost *($ M)*	FY 2020 Qty *(Each)* / Total Cost *($ M)*	FY 2021 Qty *(Each)* / Total Cost *($ M)*	FY 2022 Base Qty *(Each)* / Total Cost *($ M)*	FY 2022 OCO Qty *(Each)* / Total Cost *($ M)*	FY 2022 Total Qty *(Each)* / Total Cost *($ M)*
Installation 3 of 10: GRP: 1.1.3) Hardware Obsolescence	- / -	- / -	- / 0.034	- / -	- / -	- / -
Installation 4 of 10: GRP: 1.1.4) Torsion Brake	- / 0.013	- / -	- / -	- / -	- / -	- / -
Installation 5 of 10: GRP: 1.1.5) Halfbridges	- / -	- / -	- / -	- / 0.087	- / 0.000	- / 0.087
Installation 6 of 10: GRP: 1.1.6) Sixnet Switches	- / -	- / 1.036	- / 0.271	- / -	- / -	- / -
Installation 7 of 10: GRP: 1.1.9) PC104 Hardware Obsolescence	- / 0.005	- / 0.009	- / -	- / -	- / -	- / -
Installation 8 of 10: GRP: 1.1.10) UIC40 Urgent Obsolescence	- / 0.010	- / 0.018	- / -	- / -	- / -	- / -
Installation 9 of 10: NGL Buffer and Tensioner	- / -	- / 0.005	- / 0.020	- / -	- / -	- / -
Installation 10 of 10: PLC Urgent Obsolescence	- / -	- / 0.184	- / 0.070	- / -	- / -	- / -
Subtotal: Installation	*- / 0.157*	*- / 1.252*	*- / 0.590*	*- / 0.087*	*- / -*	*- / 0.087*
Total						
Total Cost (Procurement + Support + Installation)	**12.225**	**13.882**	**5.553**	**8.000**	**0.000**	**8.000**

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:

Installation 1 of 10: GRP: 1.1.1) Transformer Rectifier Fuse Detection Actuator

Manufacturer Information

Manufacturer Name: General Atomics (71)	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 4	Production Leadtime *(in Months)*: 3

Dates	FY 2020	FY 2021	FY 2022
Contract Dates		Jan 2021	
Delivery Dates		Apr 2021	

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.1) Transformer Rectifier Fuse Detection Actuator

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	4 / 0.028	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	4 / 0.195	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	4 / 0.028	- / -	4 / 0.195	- / -	- / -	- / -

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	4	-	-	-	-	-	-	4	-	-	-	-	-
Out	4	-	-	-	-	-	-	-	4	-	-	-	-

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)
ID Code (A=Service Ready, B=Not Service Ready) :		**MDAP/MAIS Code:**

Installation 2 of 10: GRP: 1.1.2) Position Sensor

Manufacturer Information

Manufacturer Name: General Atomics (72)	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 8	Production Leadtime *(in Months)*: 3

Dates	FY 2020	FY 2021	FY 2022
Contract Dates			
Delivery Dates			

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.2) Position Sensor

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	5 / 0.101	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	5 / 0.101	- / -	- / -	- / -	- / -	- / -

Installation Schedule

		FY 2020				FY 2021				FY 2022			
	PYS	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	5	-	-	-	-	-	-	-	-	-	-	-	-
Out	5	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:

Installation 3 of 10: GRP: 1.1.3) Hardware Obsolescence

Manufacturer Information

Manufacturer Name: General Atomics (73)	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 4	Production Leadtime *(in Months)*: 8

Dates	FY 2020	FY 2021	FY 2022
Contract Dates		Jan 2021	
Delivery Dates		Aug 2021	

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.3) Hardware Obsolescence

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	8 / 0.034	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	8 / 0.034	- / -	- / -	- / -

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	-	-	-	-	8	-	-	-	-	-	-
Out	-	-	-	-	-	-	8	-	-	-	-	-	-

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:

Installation 4 of 10: GRP: 1.1.4) Torsion Brake

Manufacturer Information

Manufacturer Name: General Atomics	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 4	Production Leadtime *(in Months)*: 2

Dates	FY 2020	FY 2021	FY 2022
Contract Dates			
Delivery Dates			

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.4) Torsion Brake

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	14 / 0.013	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	14 / 0.013	- / -	- / -	- / -	- / -	- / -

Installation Schedule

		FY 2020				FY 2021				FY 2022			
	PYS	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	14	-	-	-	-	-	-	-	-	-	-	-	-
Out	14	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)
ID Code (A=Service Ready, B=Not Service Ready) :		**MDAP/MAIS Code:**

Installation 5 of 10: GRP: 1.1.5) Halfbridges

Manufacturer Information

Manufacturer Name: General Atomics	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 6

Dates	FY 2020	FY 2021	FY 2022
Contract Dates		Mar 2021	Mar 2022
Delivery Dates		Sep 2021	Sep 2022

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.5) Halfbridges

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	35 / 0.087	0 / 0.000	35 / 0.087
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	35 / 0.087	0 / 0.000	35 / 0.087

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	-	-	-	-	-	-	-	35	-	-	-
Out	-	-	-	-	-	-	-	-	-	35	-	-	-

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:

Installation 6 of 10: GRP: 1.1.6) Sixnet Switches

Manufacturer Information

Manufacturer Name: General Atomics	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 2	Production Leadtime *(in Months)*: 6

Dates	FY 2020	FY 2021	FY 2022
Contract Dates	Nov 2019		
Delivery Dates	May 2020		

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.6) Sixnet Switches

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	177 / 1.036	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	142 / 0.271	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	177 / 1.036	142 / 0.271	- / -	- / -	- / -

Installation Schedule

		FY 2020				FY 2021				FY 2022			
	PYS	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	177	-	-	-	-	-	142	-	-	-	-	-
Out	-	-	177	-	-	-	-	-	142	-	-	-	-

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:

Installation 7 of 10: GRP: 1.1.9) PC104 Hardware Obsolescence

Manufacturer Information

Manufacturer Name: General Atomics	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 4	Production Leadtime *(in Months)*: 2

Dates	FY 2020	FY 2021	FY 2022
Contract Dates	Jan 2020		
Delivery Dates	Mar 2020		

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.9) PC104 Hardware Obsolescence

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	8 / 0.005	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	20 / 0.009	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	8 / 0.005	20 / 0.009	- / -	- / -	- / -	- / -

Installation Schedule

		FY 2020				FY 2021				FY 2022			
	PYS	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	8	-	-	20	-	-	-	-	-	-	-	-	-
Out	8	-	-	-	20	-	-	-	-	-	-	-	-

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:

Installation 8 of 10: GRP: 1.1.10) UIC40 Urgent Obsolescence

Manufacturer Information

Manufacturer Name: General Atomics	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 4	Production Leadtime *(in Months)*: 3

Dates	FY 2020	FY 2021	FY 2022
Contract Dates	Jan 2020		
Delivery Dates	Apr 2020		

Installation Information

Method of Implementation: AIT:: Installation Name: 1.1.10) UIC40 Urgent Obsolescence

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	24 / 0.010	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	72 / 0.018	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	24 / 0.010	72 / 0.018	- / -	- / -	- / -	- / -

Installation Schedule

		FY 2020				FY 2021				FY 2022			
	PYS	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	24	-	-	72	-	-	-	-	-	-	-	-	-
Out	24	-	-	-	72	-	-	-	-	-	-	-	-

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:

Installation 9 of 10: NGL Buffer and Tensioner

Manufacturer Information

Manufacturer Name: Lakehurst PMD (Prototype Manufacturing Division	Manufacturer Location: Lakehurst, NJ
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 6

Dates	FY 2020	FY 2021	FY 2022
Contract Dates	Dec 2019		
Delivery Dates	Jun 2020		

Installation Information

Method of Implementation: [none specified]:: Installation Name: NGL Buffer and Tensioner

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	1 / 0.005	8 / 0.020	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	1 / 0.005	8 / 0.020	- / -	- / -	- / -

Installation Schedule

		FY 2020				FY 2021				FY 2022			
	PYS	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	-	-	1	8	-	-	-	-	-	-	-
Out	-	-	-	-	1	-	-	8	-	-	-	-	-

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)

ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:

Installation 10 of 10: PLC Urgent Obsolescence

Manufacturer Information

Manufacturer Name: General Atomics	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 2	Production Leadtime *(in Months)*: 3

Dates	FY 2020	FY 2021	FY 2022
Contract Dates	Nov 2019	Nov 2020	
Delivery Dates	Feb 2020	Feb 2021	

Installation Information

Method of Implementation: [none specified]:: Installation Name: PLC Urgent Obsolescence

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	200 / 0.184	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	152 / 0.070	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	200 / 0.184	152 / 0.070	- / -	- / -	- / -

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	200	-	-	-	152	-	-	-	-	-	-
Out	-	-	-	-	200	-	-	-	152	-	-	-	-

Footnotes:

(59) (1) 1.1.1 Transformer Rectifier Fuse Detection Actuator: The four (4) units procured in prior years are critical to the Fuse Detection Actuator's operational effectivity. Planned installations are one (1) at the System Functional Demonstration (SFD) site in FY 2020 and three (3) for installation on CVN-78 during FY20 Post Delivery Test and Trials (PDT&T) period. The four (4) procured in FY21 will be installed, one (1) at the System Functional Demonstration (SFD) site in FY22 and three (3) for installation on CVN-78 during its FY 2022 PIA1 (Planned Incremental Availability-1). Installs adjusted for Admin and Procurement Lead times.

(60) (3) 1.1.3 Hardware Obsolescence: Crystal Rugged Servers are obsolete. This effort replaces COTS hardware servers and software and required to maintain EMALS Authority to Operate (ATO). Installation will occur during CVN78 PIA. The program plans to install eight (8) purchased in FY 2021, 2 at System Functional Demonstrator (SFD), 2 at Shipset Control Lab (SCL), 2 at Regression Test Lab (RTL), and 2 at CVN78. Installs adjusted for Admin and Procurement Lead times.

(61) 1.1.5 Halfbridges: This effort addresses the Dual Gate Driver obsolescence and reliability in the Power Conversion Subsystem (PCS)/Prime Power Interface Subsystem (PPIS) Half Bridge (HB). The scope of this effort incorporates a Fused Terminal Block (circuit protection to forestall any premature failures of the related HF power supplies) and deferment of the Insulated Gate Bipolar Transistor (IGBT) into E22.

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 3 / ALRE - Electromagnetic Aircraft Launch System (EMALS) (SJ306)
ID Code (A=Service Ready, B=Not Service Ready) :		**MDAP/MAIS Code:**

A failure of the HF Power Supply occurred at SFD test site in FY19, causing damage to the HF Power Supply Backplane due to lack of over current circuit protection. The fused terminal block provides such protection. Damage of HF Power Supply Backplane requires disassembly, removal and replacement of heavy components requiring multiply personnel and hours to complete in confined spaces aboard ship and lead times for purchase of replacement. The Fuse Terminal Block and Half-Bridge retrofit kits (480 units) will be installed on CVN78 during FY22 PDT&T period.

(62) 1.1.6 Sixnet Switches: This effort addresses bandwidth restrictions and obsolescence of Network switches on-board CVN-78. Quantities in prior years are 177 for the System Functional Demonstration (SFD) site and for Shipset Control Lab (SCL) testing. In FY 2020, a quantity of 142 will be procured for installation on CVN-78 during FY22 PIA. Follow-on NRE only actions will update the specification and logistics products, to address the bandwidth.

(63) 1.1.9 PC104 (a computer) Hardware Obsolescence: The current EMALS PC104 computers are obsolete. There are changes to hardware and software in the computer for this upgrade. Without the new hardware, the system will be unable to secure an Authority To Operate (ATO) or procure spares. The 28 required units are being procured as follows. The first 8 in FY 2019 will be procured and installed on CVN78 in FY 2019 during a Post Shakedown Availability (PSA) so that EMALS can maintain its ATO and the remaining 20 will be procured in FY 2020 and installed on CVN78 in FY 2020.

(64) 1.1.10 Universal Interface Controller (UIC) 40 Urgent Obsolescence: UIC 40s are obsolete and need to be replaced in Power Conversion System (PCS) Inverters with UIC 100s. Without the new hardware, the system will be unable to secure an ATO and spares. FY 2019 procurement is for the 24 units required for installation the same year at SFD. The FY 2020 procurement quantity of 72 units will be installed aboard CVN78 during any available maintenance periods or at the latest during the PIA.

(65) 1.1.10 NGL Buffer and Tensioner - Nose Gear Landing (NGL) hydraulic hoses are susceptible to installation damage and tensioner hoses have loosened and leaked during operation. The buffer slide assembly sticks in track and buffer hooks remain up during post-launch aft movement. This critical ECP provides the modified design and procurement to solve this NGL and buffer tensioner issue.

(66) 1.1.11 PLC Urgent Obsolescence - Programmable Logic Controller (PLC). Current PLCs are obsolete and are critical to operational effectivity of multiple systems on EMALS such as Transformer Rectifier T/R and Generator Control Tower (GCT), Thermal Management System, and Launch Motor Subsystem (LMS) Cooling System. PLC's control several functions including operation of fans and cold water pumps to provide cooling. Without these PLC component/assemblies, these systems would fail due to heat limitations/failure modes and would risk and limit EMALS launching capability. Both FY20 and FY 21 procurements will be installed during the CVN-78 PIA. Installs have been adjusted for Admin and Procurement Lead times.

(67) CE 1.2.1 Non-Recurring Engineering addresses engineering changes, obsolescence of hardware, correction of deficiencies found during integration test and development test evaluation, cyber security compliance and the fielding of critical software updates. The decrease from FY 21 to FY 22 is due to the movement from of NRE to support the EMALS E22 build.

(68) 2.2.1 NON-RECURRING ENGINEERING E22 BUILD - ORGANIC: Provides the associated Non-Recurring Engineering with the various E22 Build upgrades that support Obsolescence, Reliability Improvements/Upgrades, Operational Capability Improvements and Safety of Operations/Flight.

(69) 3.1 Production Engineering: The increase from FY21 to FY22 is to support the significant increase in engineering support associated with over ten ECPs plus planning efforts related to the E22 Build.

(70) 3.2 ILS: The increase from FY21 to FY22 is to support the significant increase in engineering support associated with over ten ECPs plus planning efforts related to the E22 Build, including, but not limited to, the Navy Modernization Ship Maintenance (SHIPMAIN) process.

(71) Transformer Rectifier Fuse Detection Actuator Installs: One (1) at the System Functional Demonstration (SFD) site in FY 2019 and three (3) for installation on CVN-78 during its FY 2019 PIA (Planned Incremental Availability). The four (4) procured in FY21 are the rest of the upgrade that affect the fuse detection actuator's reliability. They too will be installed, one (1) at the System Functional Demonstration (SFD) site in FY 2021 and three (3) for installation on CVN-78 during its FY 2021 PIA1 (Planned Incremental Availability-1).

(72) Installation are planned as follows: one for the SFD test site (1 catapult) and four for CVN78 (4 catapults). The fasteners onboard CVN78 will be changed during its Post Shakedown Availability (PSA) period.

(73) The program plans to install 8 in FY 2021, 2 at System Functional Demonstrator (SFD), 2 at Shipset Control Lab (SCL), 2 at Regression Test Lab (RTL), and 2 at CVN78.

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4213 / Aircraft Support Equipment	Modification Number / Title: 4 / LAMPS MK III - SRQ(KU)-4 (S1010)
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	96.618	25.372	35.594	17.816	0.000	17.816
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	96.618	25.372	35.594	17.816	0.000	17.816
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**96.618**	**25.372**	**35.594**	**17.816**	**0.000**	**17.816**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Description:

LAMPS MK III, AN/SRQ-4 (Ku), is an over the horizon information dominance system with a high speed, air-to-ground, digital data link that transmits reconnaissance and other data from MH-60 helicopters to surface ships (cruisers and destroyers) to enable data, imagery, electronic support measures, communications and radar information via the Ku-band link.

Program provides for non-recurring engineering, procurement and associated installation and support of AN/SRQ-4(Ku) field install kits. This system encompasses hardware and software to transmit sensor data from the Light Airborne Multi-Purpose System (LAMPS) MK III MH-60R aircraft to the host ship classes.

The FY 2022 request funds for procurement support and associated installation support of AN/SRQ-4(Ku) field install kits.

Objective Inventory is 100 kits. (68 Destroyers [DDGs], 22 Cruisers [CGs], & 10 Shore sites). 22 kits were previously installed in line item 4255 and 78 kits will be installed in line item 4213.

Notes for installation schedule:
1. Installations are subject to changes with ship availability schedules.
2. The year-to-year unit installation cost varies significantly and can exceed the projected yearly inflation rate. The varying unit cost is due to the hardware installation cost being dependent on quantity, location (i.e., Japan, Norfolk, San Diego, etc.), ship class (i.e., DDG or CG), Shipyard (i.e. Bath or Ingalls), ship baseline configuration (i.e., Navigation System installed, A-Kit pre-install), and ship availability period overlaps.
3. Production lead time includes pre-installation checkouts, kitting with other installation hardware and drawings, and time to ship the hardware to the installation site.

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 4 / LAMPS MK III - SRQ(KU)-4 (S1010)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: LAMPS MK III	**Modification Type:** Non-Organic	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement						
Modification Item 1 of 1: LAMPS MK III - SRQ(KU)-4 (S1010)						
B Kits						
Recurring						
1.1.1) SRQ(KU)-4 - NonOrganic	54 / 39.360	8 / 9.999	16 / 20.047	- / -	- / -	- / -
Subtotal: Recurring	*- / 39.360*	*- / 9.999*	*- / 20.047*	*- / -*	*- / -*	*- / -*
Non-Recurring						
1.2.1) NRE - Organic	- / 2.919	- / -	- / -	- / -	- / -	- / -
Subtotal: Non-Recurring	*- / 2.919*	*- / -*	*- / -*	*- / -*	*- / -*	*- / -*
Subtotal: LAMPS MK III - SRQ(KU)-4 (S1010)	*54 / 42.279*	*8 / 9.999*	*16 / 20.047*	*- / -*	*- / -*	*- / -*
Subtotal: Procurement, All Modification Items	*- / 42.279*	*- / 9.999*	*- / 20.047*	*- / -*	*- / -*	*- / -*
Support *(All Modification Items)*						
2.1) Data [74]	- / 2.131	- / 0.643	- / 0.562	- / 0.973	- / -	- / 0.973
2.2) Support Equipment [75]	- / 2.613	- / 1.126	- / 1.146	- / 1.153	- / -	- / 1.153
2.3) ILS	- / 8.165	- / 2.022	- / 2.058	- / 2.068	- / -	- / 2.068
2.4) Government Engineering [76]	- / 7.344	- / 2.435	- / 2.450	- / 2.500	- / -	- / 2.500
2.5) Acceptance Test & Evaluation	- / 0.349	- / 0.207	- / 0.211	- / 0.216	- / -	- / 0.216
2.6) GFE	- / 2.064	- / 0.369	- / 0.376	- / 0.382	- / -	- / 0.382
2.7) Production Line Support [77]	- / 2.708	- / 1.626	- / 1.679	- / 1.711	- / -	- / 1.711
Subtotal: Support	*- / 25.374*	*- / 8.428*	*- / 8.482*	*- / 9.003*	*- / -*	*- / 9.003*
Installation						
Modification Item 1 of 1: LAMPS MK III - SRQ(KU)-4 (S1010)	- / 28.965	- / 6.945	- / 7.065	- / 8.813	- / 0.000	- / 8.813
Subtotal: Installation	*- / 28.965*	*- / 6.945*	*- / 7.065*	*- / 8.813*	*- / -*	*- / 8.813*
Total						
Total Cost (Procurement + Support + Installation)	**96.618**	**25.372**	**35.594**	**17.816**	**0.000**	**17.816**

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4213 / Aircraft Support Equipment	**Modification Number / Title:** 4 / LAMPS MK III - SRQ(KU)-4 (S1010)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: LAMPS MK III - SRQ(KU)-4 (S1010)

Manufacturer Information

Manufacturer Name: L3 Communications	Manufacturer Location: Salt Lake City, Utah
Administrative Leadtime *(in Months)*: 4	Production Leadtime *(in Months)*: 22

Dates	FY 2020	FY 2021	FY 2022
Contract Dates	Jan 2020	Jan 2021	
Delivery Dates	Nov 2021	Nov 2022	

Installation Information

Method of Implementation: NAWCAD St. Inigoes Installation Team:: Installation Name: AN/SRQ-4 Installations

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	34 / 28.965	9 / 6.945	9 / 7.065	2 / 2.473	0 / 0.000	2 / 2.473
FY 2020	- / -	- / -	- / -	5 / 6.340	0 / 0.000	5 / 6.340
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	34 / 28.965	9 / 6.945	9 / 7.065	7 / 8.813	0 / 0.000	7 / 8.813

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	34	-	2	3	4	1	2	3	3	2	-	2	3
Out	34	-	2	3	4	1	2	3	3	2	-	2	3

Footnotes:

(74) Cost Element 2.1, Data funding procures ship installation drawings and provides for ship checks on multiple Cruiser (CG) and Destroyers (DDG) class ships scheduled for SHIPALT 79719. This cost element provides the funds to procure the data packages eighteen months prior to ship installation start. Data costs vary year to year due to CG packages being significantly more expensive as compared to DDGs due to the age and individuality of the CGs. FY22 increase is directly tied to ship installation drawings required to meet the installation schedule that begins in FY23.

(75) Cost Element 2.2, Support Equipment is for the procurement of KU-Band equipment for the fleet to replace the Test Set-4120s that allows trouble shooting of the LAMPS MK III system without an embarked helicopter.

(76) Cost Element 2.4, Government Engineering, is required for engineering support for acquisition, configuration/documentation management, GFE, support equipment, scheduling of ship installation activities, and test support required to produce, deliver and install the SRQ(KU)-4 kits onboard CG and DDG class ships.

(77) Cost Element 2.7, Production Line support is related to the Prime Contractor System Engineering Program Management (SEPM) requirements to produce and deliver SRQ(KU)-4 installation kit. Production Line support is required until the last end item is delivered in FY24. FY22 increase supports the preparation and kitting effort for installs that begin in FY23.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4217 / Advanced Arresting Gear (AAG)

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0204112N	Other Related Program Elements: 0604512N, 0604530N

Line Item MDAP/MAIS Code: 529

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	21.954	4.725	16.059	22.265	0.000	22.265	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	21.954	4.725	16.059	22.265	0.000	22.265	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**21.954**	**4.725**	**16.059**	**22.265**	**0.000**	**22.265**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	0.189	0.740	-	0.740	-	-	-	-	-	-
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The FY 2022 funding request was reduced by $0.574 million to account for the availability of prior year execution balances.

This budget line item funds the procurement for Advanced Arresting Gear (AAG) life cycle support modifications and upgrades required aboard Ford Class Carriers, Jet Car Track Site (JCTS) and Runway Arrested Landing Site (RALS) systems. Modifications included in the budget support fatigue life, obsolescence and performance enhancements to ensure the system remains operational throughout the life of the program. AAG will replace Mark 7 arresting gear aboard Ford Class aircraft carriers and will provide the U.S. Navy with the ability to recover existing and projected aircraft carrier based tail-hook equipped air vehicles well into the 21st century. AAG will enhance operational capability, provide increased operational availability, while reducing manning, maintenance and support costs. AAG is installed aboard CVN-78 as well as two land based test sites JCTS and RALS.

FY 2017 ($2.2M) and Prior Years ($74.7M) funded under Aircraft Support Equipment (BLI 4213 and BLI 4216).

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4217 / Advanced Arresting Gear (AAG)

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: 0204112N	Other Related Program Elements: 0604512N, 0604530N

Line Item MDAP/MAIS Code: 529

Exhibits Schedule					Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-3a	1 / Advanced Arresting Gear (AAG) (Advanced Arresting Gear (AAG))				- / 21.954	- / 4.725	- / 16.059	- / 22.265	- / 0.000	- / 22.265
P-40	**Total Gross/Weapon System Cost**				**- / 21.954**	**- / 4.725**	**- / 16.059**	**- / 22.265**	**- / 0.000**	**- / 22.265**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
The increase from FY 2021 to FY 2022 is due to the funding required to procure four (4) full Mod II Water Twisters (WT). The FY 2021 costs and quantities have been updated to reflect the actual unit costs based on the Water Twister Mod II contract award.

The change in budget exhibit strategy in FY 2020 and out is to provide funding in builds (aka Block upgrades) to allow the program to address the most critical ECPs. With swift changes in software updates and associated subsystems, impending cybersecurity mandates and changes driven by continuing correction of deficiencies out of RDT&E, the limited funding profile creates a dynamic situation in effectively executing this OPN Line Item to support an ever-changing list of unanticipated priority updates.

The logic of Build upgrades will provide the program more flexibility to address competing priorities of what become the most critical obsolescence, reliability, operational or safety upgrades in a given year. It also avoids multiple overlapping software releases and design rework. The block/build upgrades are categorized as follows: Obsolescence, Reliability Improvement upgrades, Operational Capability Improvements and Safety of Flight/Operations as well as the associated non-recurring engineering (NRE). Each Block/Build will generally be staggered by two (2) years to provide sufficient time for the design of each block and to level load Engineering Resources. Each block/build will conduct performance validation testing in the 3rd year, with kit manufacture in the 4th year and install in the 5th year. These lead times will also allow each Build to be available and leverage ship construction and availability schedules.

Notes for Installation Schedule:
1. Installations are subject to change with ship availability schedule updates.
2. The year-to-year unit installations costs will vary and can exceed the projected yearly inflation rate due to the hardware installation cost being dependent on quantity and location of the ship at the time of install or which site is being update, which CVN, and the ships baseline configuration.
3. Production lead time includes pre-installation checkout, kitting with other installation hardware and drawings, and time to deliver the hardware to the installation site.

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4217 / Advanced Arresting Gear (AAG)	**Modification Number / Title:** 1 / Advanced Arresting Gear (AAG)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	21.954	4.725	16.059	22.265	0.000	22.265
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	21.954	4.725	16.059	22.265	0.000	22.265
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**21.954**	**4.725**	**16.059**	**22.265**	**0.000**	**22.265**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Description:

This budget line item funds the procurement for Advanced Arresting Gear (AAG) life cycle support modifications and upgrades required aboard Ford Class Carriers, Jet Car Track Site (JCTS) and Runway Arrested Landing Site (RALS) systems. Modifications included in the budget support fatigue life, obsolescence and performance enhancements to ensure the system remains operational throughout the life of the program. AAG will replace Mark 7 arresting gear aboard Ford Class aircraft carriers and will provide the U.S. Navy with the ability to recover existing and projected aircraft carrier based tail-hook equipped air vehicles well into the 21st century. AAG will enhance operational capability, provide increased operational availability, while reducing manning, maintenance and support costs. AAG is installed aboard CVN-78 and in two land based test sites at JCTS and RALS.

FY 2022 provides funding for four (4) full Mod II Water Twister procurements. FY 2022 also continues to provide funding for the non-recurring engineering (NRE) to continue to address and field critical software updates, maintain cyber security compliance and hardware obsolescence ECPs onboard CVN-78 and at RALS and JCTS.

FY 2017 and prior funded under Aircraft Support Equipment (BLI 4213 and BLI 4216).

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4217 / Advanced Arresting Gear (AAG)	**Modification Number / Title:** 1 / Advanced Arresting Gear (AAG)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: MK-15	**Modification Type:** Advanced Arresting Gear (AAG)	**Related RDT&E PEs:** 0604512N, 0604530N

Financial Plan (*) Indicates the modification is being installed organically and no installation funds are required.	Prior Years Qty *(Each)* / Total Cost *($ M)*	FY 2020 Qty *(Each)* / Total Cost *($ M)*	FY 2021 Qty *(Each)* / Total Cost *($ M)*	FY 2022 Base Qty *(Each)* / Total Cost *($ M)*	FY 2022 OCO Qty *(Each)* / Total Cost *($ M)*	FY 2022 Total Qty *(Each)* / Total Cost *($ M)*
Procurement						
1.1.1) Water Twister - NonOrganic *Installation 1 of 4*	10 / 12.739	- / -	- / -	- / -	- / -	- / -
1.1.2) Water Twister Mod II - NonOrganic (1) *Installation 2 of 4*	- / -	- / -	2 / 10.189	4 / 20.907	- / -	4 / 20.907
1.1.3) PCD/CSA Sheave Grease Manifold - NonOrganic(*)	6 / 0.034	- / -	- / -	- / -	- / -	- / -
1.1.4) Reconfiguration of ROCS - NonOrganic(*)	1 / 0.024	- / -	- / -	- / -	- / -	- / -
1.1.5) Encoder Replacement - NonOrganic *Installation 3 of 4*	3 / 0.166	- / -	- / -	- / -	- / -	- / -
1.1.6) Retractable Sheave Electric Control Panel Obsolescence - Organic(*)	8 / 0.461	- / -	- / -	- / -	- / -	- / -
1.2.1) Non-Recurring Engineering - Organic(*) (2)	- / 7.458	- / -	- / 0.943	- / 0.418	- / -	- / 0.418
2.1.1) AAG Block I Upgrade - NonOrganic *Installation 4 of 4*	- / -	1 / 2.684	1 / 3.821	- / -	- / -	- / -
2.2.1) Non-Recurring Engineering - Organic(*)	- / -	- / 1.318	- / 0.200	- / -	- / -	- / -
3.2.1) Non-Recurring Engineering - Organic(*)	- / -	- / -	- / -	- / 0.243	- / -	- / 0.243
Subtotal: Procurement	*- / 20.882*	*- / 4.002*	*- / 15.153*	*- / 21.568*	*- / -*	*- / 21.568*
Support						
4.1) Integrated Logistics Support	- / 0.375	- / 0.250	- / 0.606	- / 0.232	- / -	- / 0.232
4.2) Production Engineering Support	- / 0.457	- / 0.250	- / 0.300	- / 0.250	- / -	- / 0.250
Subtotal: Support	*- / 0.832*	*- / 0.500*	*- / 0.906*	*- / 0.482*	*- / -*	*- / 0.482*
Installation						
Installation 1 of 4: GRP: 1.1.1) Water Twister	- / -	- / 0.183	- / -	- / -	- / -	- / -
Installation 2 of 4: Water Twister Mod II	- / -	- / -	- / -	- / -	- / -	- / -
Installation 3 of 4: GRP: 1.1.5) Encoder Replacement	- / -	- / 0.040	- / -	- / -	- / -	- / -
Installation 4 of 4: AAG Block I Upgrade	- / -	- / -	- / -	- / 0.215	- / 0.000	- / 0.215
Subtotal: Installation	*- / 0.240*	*- / 0.223*	*- / -*	*- / 0.215*	*- / -*	*- / 0.215*
Total						
Total Cost (Procurement + Support + Installation)	**21.954**	**4.725**	**16.059**	**22.265**	**0.000**	**22.265**

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4217 / Advanced Arresting Gear (AAG)	**Modification Number / Title:** 1 / Advanced Arresting Gear (AAG)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Installation 1 of 4: GRP: 1.1.1) Water Twister

Manufacturer Information

Manufacturer Name: General Atomics (3)	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 6	Production Leadtime *(in Months)*: 12

Dates	FY 2020	FY 2021	FY 2022
Contract Dates			
Delivery Dates			

Installation Information

Method of Implementation: AIT Install:: Installation Name: 1.1.1) Water Twister

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	4 / 0.183	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	4 / 0.183	- / -	- / -	- / -	- / -

Installation Schedule

		FY 2020				FY 2021				FY 2022			
	PYS	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	4	-	-	-	-	-	-	-	-	-	-	-
Out	-	-	-	4	-	-	-	-	-	-	-	-	-

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4217 / Advanced Arresting Gear (AAG)	**Modification Number / Title:** 1 / Advanced Arresting Gear (AAG)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Installation 2 of 4: Water Twister Mod II		

Manufacturer Information

Manufacturer Name: General Atomics	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 25

Dates	FY 2020	FY 2021	FY 2022
Contract Dates		Dec 2020	Dec 2021
Delivery Dates		Jan 2023	Jan 2024

Installation Information

Method of Implementation: HII (Huntington Ingallls Industries):: Installation Name: Water Twister Mod II

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	-	-	-	-	-	-	-	-	-	-	-
Out	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4217 / Advanced Arresting Gear (AAG)	**Modification Number / Title:** 1 / Advanced Arresting Gear (AAG)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Installation 3 of 4: GRP: 1.1.5) Encoder Replacement

Manufacturer Information

Manufacturer Name: General Atomics	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 5	Production Leadtime *(in Months)*: 11

Dates	FY 2020	FY 2021	FY 2022
Contract Dates			
Delivery Dates			

Installation Information

Method of Implementation: AIT Install:: Installation Name: 1.1.5) Encoder Replacement

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	3 / 0.040	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	3 / 0.040	- / -	- / -	- / -	- / -

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	3	-	-	-	-	-	-	-	-	-	-
Out	-	-	-	3	-	-	-	-	-	-	-	-	-

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4217 / Advanced Arresting Gear (AAG)	**Modification Number / Title:** 1 / Advanced Arresting Gear (AAG)
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Installation 4 of 4: AAG Block I Upgrade

Manufacturer Information

Manufacturer Name: General Atomics	Manufacturer Location: San Diego, CA
Administrative Leadtime *(in Months)*: 7	Production Leadtime *(in Months)*: 24

Dates	FY 2020	FY 2021	FY 2022
Contract Dates	Apr 2020	Apr 2021	
Delivery Dates	Apr 2022	Apr 2023	

Installation Information

Method of Implementation: AIT:: Installation Name: AAG Block I Upgrade

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	- / -	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	- / -	- / -	1 / 0.215	0 / 0.000	1 / 0.215
FY 2021	- / -	- / -	- / -	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	- / -	- / -	- / -
Total	- / -	- / -	- / -	1 / 0.215	0 / 0.000	1 / 0.215

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	-	-	-	-	-	-	-	-	-	-	-	1	-
Out	-	-	-	-	-	-	-	-	-	-	-	-	1

Footnotes:

(1) 1.1.2 Water Twister Mod II: The funding provides for a Mod II Water Twisters. The costs and quantities have been updated to reflect the increase in unit costs based on the Water Twister Mod II contract award. An increase in the cost per Water Twister Mod II is due to the maturity of the technical data package and complexity in manufacturing identified during development. Unit costs include the cost per Water Twister as well as contractor labor. The fluctuation in unit costs from FY 2021 to FY 2022 are due to the direct and indirect contractor rates that change each year. The increase from FY 2021 to FY 2022 supports the procurement of four (4) Mod II Water Twisters.

(2) 1.2.1 Non-Recurring Engineering - Provides the associated non-recurring engineering associated with the Mod II Water Twister updates. The decrease from FY21 to FY22 is due to the move from organic to non-organic in support of the Mod II Water Twister.

(3) The 4 units being installed in FY 2020 are for the two land based test sites. Runway Arrested Landing Site (RALS) and Jet Car Track Site (JCTS) both in Lakehurst, NJ.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4226 / Meteorological Equipment

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	181.152	12.407	15.192	13.687	0.000	13.687	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	181.152	12.407	15.192	13.687	0.000	13.687	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**181.152**	**12.407**	**15.192**	**13.687**	**0.000**	**13.687**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	0.736	0.112	0.168	-	0.168	-	-	-	-	-	-
Flyaway Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Thousands)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The Meteorological Equipment budget line item provides new and replacement meteorological equipment for Navy and Marine Corps Air Stations, Navy ships, Marine Corps Operational Force units and other activities required to provide weather observations and provide safety of flight capabilities. It also provides new Intelligence Preparation of the Operational Environment (IPOE) equipment for submarines. The Meteorological Equipment procurement has been coordinated with other Department of Defense (DoD) and civilian agencies.

[P40A / SP051 Satellite Receiver Upgrades (Space)]: Environmental Satellite Receiver Processor Systems (ESRP Ashore and ESRP Afloat) receive and process remotely sensed data in L and S frequency bands from several National and International Meteorology and Oceanography (METOC) Satellite families such as the Defense Meteorological Satellite Program (DMSP) Polar Satellites, the National Oceanic and Atmospheric Administration (NOAA) satellites, and the Geostationary Operational Environmental Satellite (GOES-R) Series. Integration of next generation polar and geostationary orbiting satellite families and new sensors of opportunity shall be incorporated in the hardware design and software upgrades to existing Environmental Satellite Receiver Processor Systems both afloat and ashore. Upgrades include GOES-R, Electro-Optical/Infrared Weather Systems - Geostationary (EWS-G) and Weather System Follow-On Microwave (WSF-M) ingest of METOC data.

[P40A / SP550 METOC SASC Upgrades]: Procurement of Government Off-The-Shelf/Commercial Off-The-Shelf hardware, and associated software upgrades for the 68 fielded Automated Surface Observing Systems (ASOS) and the 9 fielded Supplemental Weather Radars (SWR). Both atmospheric sensing systems are essential for aviation safety, Naval Aviation operations and resource protection. ASOS procurements under this project will provide system upgrades as required by the 2020 National Weather Service Interagency Agreement. SWR upgrades of End of Life components, software and subsystems under this project provide System Life Extension by mitigating CYBER risk and Diminishing Manufacturing Sources and Material Shortages (DMSMS).

[P40A / SP600 Littoral Battlespace Sensing - Unmanned Undersea Vehicles (LBS-UUV)]: Procures Unmanned Undersea Vehicle (UUV) ocean sensor systems. These include electrical powered, short duration (~days) Autonomous Undersea Vehicles (AUV) which carry sensors that characterize the ocean bottom (bathymetry, imagery, etc.) and long duration (~months) buoyancy driven ocean Gliders that sense ocean volume parameters (conductivity, temperature, depth, optical clarity, currents, etc.). The AUVs are preprogrammed with mission profiles and once launched are completely autonomous. The Ocean Gliders are controlled remotely from the Naval Oceanographic Office (NAVOCEANO), Stennis Space Center, Mississippi from the Glider Operations Center (GOC).

[P40A / SP660 Tactical METOC Applications]: The Naval Integrated Tactical Environmental System - Next Generation (NITES-Next) program identifies and transitions state-of-the-art decision support software and hardware technologies from the government and commercial industry's technology base, and then demonstrates and validates these capabilities before fielding. These software decision support tools provide platform, sensor, communications, and weapon systems performance assessments for warfighters in terms of their littoral and deep-strike battlespace environments. These assessments allow mission planners and warfighters, from Unit to Theater level, to optimize their sensor employment on airborne, surface, and subsurface platforms in support of Naval Composite Warfare mission areas including Undersea

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4226 / Meteorological Equipment	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

Warfare (USW), Anti-Submarine Warfare (ASW), Mine Warfare (MIW), Amphibious Warfare (AMW), Anti-Surface Warfare (ASUW), Anti-Air Warfare (AAW), Strike Warfare (STW), Expeditionary Warfare (EXW), Electronic Warfare (EW), Information Operations (IO), Intelligence Operations (INT), Non-Combat Operations (NCO), Command, Control, Communication (CCC), and Naval Special Warfare (NSW). Performance assessments leading to improvements in operational and tactical control are conducted through a two-tiered approach: 1) Meteorological and Oceanographic (METOC) Decision Aids and, 2) Operational Effects Decision Aids (OEDAs). METOC Decision Aids consist of a series of analysis tools which characterize the physical environmental conditions of the battlespace based on the best set of physical environmental data available at the time (i.e., some combination of historical and/or real-time (or near real-time) in-situ, and numerically modeled forecast data). OEDAs use the METOC Decision Aid information by fusing it with relevant, often-classified, sensor and target data to predict how weapons and sensor systems will perform. Performance results are displayed in tabular and graphic formats integrated into net-centric visualization tools for use by mission planners, and combat/weapon system operators to develop localization plans, USW/AAW/ASUW screens, STW profiles, and AMW ingress and egress points. METOC Decision Aids and OEDAs typically use data derived from sensors developed in Project 2341 (METOC Data Acquisition) and assimilated by software produced by Project 2342 (METOC Data Assimilation and Modeling). METOC Decision Aids and OEDAs also use data obtained through direct interfaces to Navy combat systems. Cyber secure capabilities are a current emphasis required to characterize and/or predict sensor and weapons system performance in the highly complex littoral environments in support of regional conflict scenarios. It addresses multi-warfare areas, particularly shallow water ASW, NSW, and missile and air defense/strike capabilities.

[P40A / SP220 Hazardous Weather Detection and Display Capability (HWDDC)]: The Hazardous Weather Detection and Display Capability (HWDDC) provides near real-time severe weather information (thunderstorms, high winds, turbulence, etc.) to ship, Strike Group, and Expeditionary Group personnel. HWDDC is a key safety of aviation and navigation enabler. HWDDC also supports efficient planning and execution of aircraft and small boat launch/recovery operations as well as severe weather dependent evolutions such as underway replenishments. The HWDDC technology is integrated with the AN/SPS-48E and AN/SPS-48G radars. HWDDC is currently installed on all Force Level ships with installation on LPD-17 San Antonio class ships beginning in FY22.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4226 / Meteorological Equipment

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-40a	Meteorological Equipment	P-5a			- / 181.152	- / 12.406	- / 15.192	- / 13.687	- / -	- / 13.687
P-40	**Total Gross/Weapon System Cost**				**- / 181.152**	**- / 12.407**	**- / 15.192**	**- / 13.687**	**- / 0.000**	**- / 13.687**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
The FY2022 budget will procure the following:

(SP051) Environmental Satellite Receiver Systems (ESRP)
- (2) ESRP AFLOAT Satellite Receiver Upgrade Kit
- (1) ESRP AFLOAT Antenna Pedestal Upgrade Kit

(SP550) Meteorological and Oceanographic Surface-based Atmospheric Sensing Capability (METOC SASC) Upgrades
- (15) Automated Surface Observing System (ASOS) Upgrades
- (9) Supplemental Weather Radar (SWR) Upgrades

(SP600) Littoral Battlespace Sensing - Unmanned Undersea Vehicles (LBS-UUV)
- (18) LBS Gliders (LBS-G)
- (7) LBS-UUV Upgrades/Backfits
- LBS Gliders (LBS-G) FY22 procurements will be installed in FY23

(SP660) Tactical METOC Applications
- (36) Naval Integrated Tactical Environmental - Next Gen (NITES-Next) Sensors

(SP220) Hazardous Weather Detection and Display Capability (HWDDC)
- (2) AN/UMR-1A; FY 2022 decrease is due to ship availability and aligns to inventory objective
- FY22 procurements will be installed in FY23

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4226 / Meteorological Equipment	**Aggregated Items Title:** Meteorological Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
			Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)
1) SP051 Satellite Receiver Upgrades (Space)																				
1.1) ESRP ASHORE GOES-R Antenna/ Pedestal(†)	A		756.500	2	1.513	738.000	1	0.738	-	-	-	-	-	-	-	-	-	-	-	-
1.2) ESRP ASHORE Receiver Processor	A		196.000	1	0.196	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3) ESRP ASHORE Satellite Receiver Upgrade Kit	A		-	-	2.152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.4) ESRP AFLOAT Satellite Receiver Upgrade Kit (1)(†)	A		123.333	27	3.330	555.370	1	0.555	566.480	2	1.133	577.810	2	1.156	-	-	-	577.810	2	1.156
1.5) ESRP ASHORE Antenna Positioner Upgrade Kit	A		-	-	0.496	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.6) ESRP AFLOAT Antenna Pedestal Upgrade Kit(†)	A		277.935	31	8.616	976.936	1	0.977	996.000	1	0.996	1,016.400	1	1.016	-	-	-	1,016.400	1	1.016
Subtotal: 1) SP051 Satellite Receiver Upgrades (Space)			**-**	**-**	***16.303***	**-**	**-**	***2.270***	**-**	**-**	***2.129***	**-**	**-**	***2.172***	**-**	**-**	**-**	**-**	**-**	***2.172***
2) SP550 METOC SASC Upgrades																				
2.1) Automated Surface Observing System (ASOS) Upgrades (2)(†)	A		48.998	440	21.559	191.750	8	1.534	193.000	19	3.667	202.067	15	3.031	-	-	-	202.067	15	3.031
2.2) Supplemental Weather Radar (SWR) Upgrades (3)(†)	A		61.695	118	7.280	141.429	14	1.980	158.000	10	1.580	151.111	9	1.360	-	-	-	151.111	9	1.360
Subtotal: 2) SP550 METOC SASC Upgrades			**-**	**-**	***28.839***	**-**	**-**	***3.514***	**-**	**-**	***5.247***	**-**	**-**	***4.391***	**-**	**-**	**-**	**-**	**-**	***4.391***
3) SP600 Littoral Battlespace Sensing - Unmanned Undersea Vehicles (LBS-UUV)																				
3.1) LBS-Gliders (LBS-G) (4)(†)	A		697.537	54	37.667	205.290	15	3.079	204.186	18	3.675	208.290	18	3.749	-	-	-	208.290	18	3.749
3.2) LBS-UUV Upgrades/Backfits(†)	A		412.636	11	4.539	-	-	-	71.429	7	0.500	72.857	7	0.510	-	-	-	72.857	7	0.510
Subtotal: 3) SP600 Littoral Battlespace Sensing - Unmanned Undersea Vehicles (LBS-UUV)			**-**	**-**	***42.206***	**-**	**-**	***3.079***	**-**	**-**	***4.175***	**-**	**-**	***4.259***	**-**	**-**	**-**	**-**	**-**	***4.259***
4) SP660 Tactical METOC Applications																				
4.1) Naval Integrated Tactical Enviornmental - Next Gen (NITES-Next) Laptops(†)	A		-	-	-	3.023	437	1.321	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4226 / Meteorological Equipment	**Aggregated Items Title:** Meteorological Equipment

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
			Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)	Unit Cost ($ K)	Qty (Each)	Total Cost ($ M)
4.2) Naval Integrated Tactical Enviornmental - Next Gen (NITES-Next) Sensors (5)(†)	A		-	-	-	-	-	-	24.778	36	0.892	24.472	36	0.881	-	-	-	24.472	36	0.881
Subtotal: 4) SP660 Tactical METOC Applications			**-**	**-**	***0.000***	**-**	**-**	***1.321***	**-**	**-**	***0.892***	**-**	**-**	***0.881***	**-**	**-**	**-**	**-**	**-**	***0.881***
5) SP220 Hazardous Weather Detection and Display Capability (HWDDC)																				
5.1) AN/UMR-1A (6)(†)	A		-	-	-	136.980	7	0.959	137.000	7	0.959	139.740	2	0.279	-	-	-	139.740	2	0.279
Subtotal: 5) SP220 Hazardous Weather Detection and Display Capability (HWDDC)			**-**	**-**	***0.000***	**-**	**-**	***0.959***	**-**	**-**	***0.959***	**-**	**-**	***0.279***	**-**	**-**	**-**	**-**	**-**	***0.279***
6) SP555 Production Support																				
6.1) Satellite Receiver Upgrades	A		-	-	0.851	-	-	0.147	-	-	0.100	-	-	0.076	-	-	-	-	-	0.076
6.2) LBS-UUV	A		-	-	4.016	-	-	0.206	-	-	0.174	-	-	0.199	-	-	-	-	-	0.199
Subtotal: 6) SP555 Production Support			**-**	**-**	***4.867***	**-**	**-**	***0.353***	**-**	**-**	***0.274***	**-**	**-**	***0.275***	**-**	**-**	**-**	**-**	**-**	***0.275***
7) SP776 Non-FMP																				
7.1) Satellite Receiver Upgrades	A		-	-	2.079	-	-	0.091	-	-	0.093	-	-	-	-	-	-	-	-	-
Subtotal: 7) SP776 Non-FMP			**-**	**-**	***2.079***	**-**	**-**	***0.091***	**-**	**-**	***0.093***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
8) SP777 FMP																				
8.1) Satellite Receiver Upgrades	A		-	-	4.332	-	-	0.728	-	-	1.006	-	-	1.075	-	-	-	-	-	1.075
8.2) HWDDC	A		-	-	-	-	-	-	-	-	0.175	-	-	0.175	-	-	-	-	-	0.175
Subtotal: 8) SP777 FMP			**-**	**-**	***4.332***	**-**	**-**	***0.728***	**-**	**-**	***1.181***	**-**	**-**	***1.250***	**-**	**-**	**-**	**-**	**-**	***1.250***
9) DSA																				
9.1) HWDDC (7)	A		-	-	-	-	-	0.091	-	-	0.242	-	-	0.180	-	-	-	-	-	0.180
Subtotal: 9) DSA			**-**	**-**	***0.000***	**-**	**-**	***0.091***	**-**	**-**	***0.242***	**-**	**-**	***0.180***	**-**	**-**	**-**	**-**	**-**	***0.180***
10) Consolidated Prior Year Requirements (8)																				
10.1) Consolidated Prior Year Requirements	A		126.187	654	82.526	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 10) Consolidated Prior Year Requirements			**-**	**-**	***82.526***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total			**-**	**-**	**181.152**	**-**	**-**	**12.406**	**-**	**-**	**15.192**	**-**	**-**	**13.687**	**-**	**-**	**-**	**-**	**-**	**13.687**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

(†) indicates the presence of a P-5a

Footnotes:

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4226 / Meteorological Equipment	**Aggregated Items Title:** Meteorological Equipment

(1) 1.4) ESRP AFLOAT Satellite Receiver Upgrade Kit - The METOC Environmental Satellite Receiver Processor (ESRP) primary focus for the FY2022 request is for procurement of the Satellite Receiver and Antenna Pedestal upgrade kits in support of the Meteorological and Oceanographic Surface-based Atmospheric Sensing Capability (METOC SASC) family of systems.

(2) 2.1) Automated Surface Observing System (ASOS) Upgrades - FY 2022 quantities represent Acquisition Control Units (ACU) and Data Collection Packages (DCP) (HW and SW) for 15 site upgrades.

(3) 2.2) Supplemental Weather Radar (SWR) Upgrades - FY 2022 quantities represent radome and waveguide upgrades for 9 site upgrades.

(4) 3.1) Littoral Battlespace Sensing - Gliders (LBS-G): FY 2022 quantities represent replacement units. Replacement units required to maintain inventory objective due to lost, stolen or damaged systems. FY21-22 Glider quantities and unit cost may vary based on contract award in FY21.

(5) 4.2) NITES-Next Sensors - Procurements are for the Mobile Variant of the NITES-Next system and will not require any install costs.

(6) 5.1) AN/UMR-1A - FY 2022 decrease in units is due to ship availability and aligns to inventory objective.

(7) 9.1) HWDDC (DSA) - FY 2022 decrease in DSA costs are the result of a change in class SHIPALT drawing and engineering requirements.

(8) Consolidated Prior Year Requirements: Programs included in this Cost Element include: TESS/NITES (Mobile Tactical System and Hardware Components, METMF(R) NEXGEN/Subsystems, METOC Satellite Data Exploitation Readiness (FNMOC Upgrades and NAVOCEANO Upgrades), Hazardous Weather Detection & Display Capability (HWDDC)SPS-48E/G Variant, Littoral Battlespace Sensing - Autonomous Undersea Vehicles (LBS-AUV), Littoral Battlespace Sensing - (LBS-AUV) Shipset and Satellite Receiver Upgrades (Space) (FNMOC Upgrades and NAVOCEANO Upgrades), LBS-AUV(S)/Razorback.

Exhibit P-5a, Procurement History and Planning: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4226 / Meteorological Equipment	Aggregated Items: Meteorological Equipment

Item Number / Title [DODIC]	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($ K)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1) SP051 Satellite Receiver Upgrades (Space)												
1.1) ESRP ASHORE GOES-R Antenna/Pedestal		2020	Raytheon / Indianapolis	SS / CPFF	NAVWAR	Feb 2020	Jun 2020	1	738.000	Y		Sep 2019
1.4) ESRP AFLOAT Satellite Receiver Upgrade Kit (1)		2020	Raytheon / Indianapolis	SS / CPFF	NAVWAR	Feb 2020	Jun 2020	1	555.370	Y		Sep 2019
1.4) ESRP AFLOAT Satellite Receiver Upgrade Kit (1)		2021	Raytheon / Indianapolis	SS / CPFF	NAVWAR	Feb 2021	Jun 2021	2	566.480	Y		Sep 2020
1.4) ESRP AFLOAT Satellite Receiver Upgrade Kit (1)		2022	Raytheon / Indianapolis	SS / CPFF	NAVWAR	Feb 2022	Jun 2022	2	577.810	Y		Sep 2021
1.6) ESRP AFLOAT Antenna Pedestal Upgrade Kit		2020	Raytheon / Indianapolis	SS / CPFF	NAVWAR	Feb 2020	Jun 2020	1	976.936	Y		Sep 2019
1.6) ESRP AFLOAT Antenna Pedestal Upgrade Kit		2021	Raytheon / Indianapolis	SS / CPFF	NAVWAR	Feb 2021	Jun 2021	1	996.000	Y		Sep 2020
1.6) ESRP AFLOAT Antenna Pedestal Upgrade Kit		2022	Raytheon / Indianapolis	SS / CPFF	NAVWAR	Feb 2022	Jun 2022	1	1,016.400	Y		Sep 2021
2) SP550 METOC SASC Upgrades												
2.1) Automated Surface Observing System (ASOS) Upgrades (2)		2020	National Weather Service (NWS) / MD	MIPR	NWS	Jan 2020	May 2020	8	191.750	Y		
2.1) Automated Surface Observing System (ASOS) Upgrades (2)		2021	National Weather Service (NWS) / MD	MIPR	NWS	Jan 2021	May 2021	19	193.000	Y		
2.1) Automated Surface Observing System (ASOS) Upgrades (2)		2022	National Weather Service (NWS) / MD	MIPR	NWS	Jan 2022	May 2022	15	202.067	Y		
2.2) Supplemental Weather Radar (SWR) Upgrades (3)		2020	Enterprise Electronics Corp. / AL	C / FP	NIWC LANT	Feb 2020	Jul 2020	14	141.429	Y		Jul 2018
2.2) Supplemental Weather Radar (SWR) Upgrades (3)		2021	Enterprise Electronics Corp. / AL	C / FP	NIWC LANT	Feb 2021	Jul 2021	10	158.000	Y		Nov 2019
2.2) Supplemental Weather Radar (SWR) Upgrades (3)		2022	Enterprise Electronics Corp. / AL	C / FP	NIWC LANT	Feb 2022	Jul 2022	9	151.111	Y		Nov 2020
3) SP600 Littoral Battlespace Sensing - Unmanned Undersea Vehicles (LBS-UUV)												
3.1) LBS-Gliders (LBS-G) (4)		2020	Teledyne Brown Eng / AL	C / CPIF	NAVWAR	Mar 2020	Feb 2021	15	205.290	Y		Apr 2008
3.1) LBS-Gliders (LBS-G) (4)		2021 (9)	TBD / TBD	C / FFP	NAVWAR	Jun 2021	May 2022	18	204.186	Y		Sep 2020
3.1) LBS-Gliders (LBS-G) (4)		2022	TBD / TBD	C / FFP	NAVWAR	Mar 2022	Feb 2023	18	208.290	Y		Jul 2021
3.2) LBS-UUV Upgrades/Backfits		2021	Hydroid, Inc. / MA	C / FFP	NAVWAR	Mar 2021	Jun 2021	7	71.429	Y		Dec 2020
3.2) LBS-UUV Upgrades/Backfits		2022	Hydroid, Inc. / MA	C / FFP	NAVWAR	Mar 2022	Jun 2022	7	72.857	Y		Dec 2021
4) SP660 Tactical METOC Applications												

Exhibit P-5a, Procurement History and Planning: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4226 / Meteorological Equipment	Aggregated Items: Meteorological Equipment

Item Number / Title [DODIC]	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($ K)	Specs Avail Now?	Date Revision Available	RFP Issue Date
4.1) Naval Integrated Tactical Enviornmental - Next Gen (NITES-Next) Laptops		2020	METGreen Solutions, Inc / Omaha, NE	C / CPFF	San Diego	Sep 2020	Apr 2021	437	3.023	Y		Jan 2020
4.2) Naval Integrated Tactical Enviornmental - Next Gen (NITES-Next) Sensors (5)		2021 (10)	Intellisense Systems, Inc. / CA	C / CPFF	NAVWAR	Apr 2021	Jul 2021	36	24.778	N	Jan 2021	Jan 2021
4.2) Naval Integrated Tactical Enviornmental - Next Gen (NITES-Next) Sensors (5)		2022	Intellisense Systems, Inc. / CA	C / CPFF	NAVWAR	Mar 2022	Jun 2022	36	24.472	N	Jan 2021	Jan 2022
5) SP220 Hazardous Weather Detection and Display Capability (HWDDC)												
5.1) AN/UMR-1A (6)		2020	BCI / NJ	C / CPFF	NIWC PAC	Apr 2020	Apr 2021	7	136.980	Y		Apr 2020
5.1) AN/UMR-1A (6)		2021	BCI / NJ	C / CPFF	NIWC PAC	Apr 2021	Apr 2022	7	137.000	Y		Apr 2020
5.1) AN/UMR-1A (6)		2022	BCI / NJ	C / CPFF	NIWC PAC	Apr 2022	Apr 2023	2	139.740	Y		Apr 2020

Footnotes:

(9) P5A: Littoral Battlespace Sensing - Gliders (LBS-G) - FY 2021 and FY 2022 TBD due to new follow-on production contract.

(10) P5A: NITES-Next Sensors will be Commercial off the Shelf (COTS) equipment which will not require extensive lead times or installations.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4248 / Legacy Airborne MCM

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: 0604373N

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	507.605	15.998	6.674	4.446	0.000	4.446	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	507.605	15.998	6.674	4.446	0.000	4.446	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**507.605**	**15.998**	**6.674**	**4.446**	**0.000**	**4.446**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	0.619	0.227	0.474	-	0.474	-	-	-	-	-	-
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

Airborne Mine Countermeasures (AMCM) Equipment is currently deployed on MH-53E and MH-60S helicopters to counter the threat of sea mines. The equipment is divided into three categories -- minesweeping, minehunting and mine neutralization. (1) Minesweeping is performed by mechanical or influence sweeps. In mechanical sweeping, the mine mooring is severed by the sweep gear allowing the mine to float to the surface where it is destroyed. In influence sweeping, a magnetic or acoustic field which simulates the magnetic/acoustic signature of a ship is introduced into the water. This field causes the mine mechanism to actuate. (2) In minehunting, mine-like objects are located and classified (usually by means of high resolution sonar). (3) Finally, neutralize mines using explosive devices. AMCM squadrons currently have mechanical, magnetic, and acoustic sweeping capabilities, mine surveillance, marking and neutralization capabilities.

Current world mining threats have resulted in increased operational demand of systems to perform AMCM missions. Fleet requires increased AMCM capability to address warfighting gaps and the reliability, maintainability, and availability of critical systems to perform world-wide operations. The AMCM program provides systems to address a global threat and serve to deter placement of mines to allow ships to transit freely. Lack of AMCM capability will result in loss of the Fleet's ability to conduct freedom of maneuver, increasing risk to ships while operating in mine threat areas.

Modifications: Funds will support the modification and product improvements of AMCM systems to accommodate replacement of subsystems/components because of safety, maintainability, reliability and obsolescence issues. Engineering Change Proposals (ECPs) generated from obsolescence issues and parts failures are necessary to sustain the operational availability and reliability of the Fleet's neutralization through end of service life. Additionally, as the systems have aged, operational and intermediate level maintenance actions on the systems have failed to return assets to Ready for Issue (RFI) condition. Depot level overhauls of the neutralization systems and components are required to ensure the systems are sustainable through the end of their service life. ECPs are analyzed, prioritized and screened to accommodate replacement of subsystems/components. Specifically, an upgrade of the AN/ASQ-232A SeaFox trainer from Version 0 to Version 1 will be executed, providing interoperability of the SeaFox simulator on the SeaFox Airborne Mine Neutralization system (AMNS), and will provide video simulations on the control panels monitors, include different bottom types, add bottom and buried targets to the system's software simulations, and inject additional failure modes into the simulated missions. Funds will also support upgrades of hardware to maintain their system's operational availability as more demanding operational support and software requirements are levied on aging hardware. Cybersecurity upgrades are required to ensure compliance with Department of Navy's Risk Management Framework process. Beginning in FY2024, funding will support efforts to resolve DMSMS issues with the existing post mission analysis (PMA) systems. The existing PMA hardware started reaching end of life in FY20.

AN/AQS-24 sonar: Funds support an in-service mine detection system that detects, classifies, localizes, and identifies sea mines. The sonar sensor is deployed from the MH-53E helicopter and is used against moored and bottom mines. AN/AQS-24B provides High Speed Synthetic Aperture Sonar (SAS). AN/AQS-24C provides Volume Search Capability.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4248 / Legacy Airborne MCM	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** 0604373N
Line Item MDAP/MAIS Code: N/A		

AN/ASQ-235 Airborne Mine Neutralization System (AMNS): Funds support a mine neutralization system that provides a remotely controlled expendable mine neutralization device deployed from the MH-60S helicopter platform to reacquire, identify, and neutralize moored and proud sea mines.

AN/AES-1 Airborne Laser Mine Detection System (ALMDS): Funds support a mine detection system that provides a light detection and ranging (LIDAR) system for rapid detection, classification, and localization of near surface sea mines. It is deployed on the MH-60S helicopter. This funding line supports modification and product improvements of ALMDS to accommodate obsolescence issues.

This AMCM procurement line supports the AMNS and ALMDS program of record, delivering AMNS and ALMDS systems to Navy helicopter wings to provide initial proficiency training to Navy aircrews and ALMDS certified shipping containers.

The LCS MCM Mission Modules procurement line (OPN 1601) supports the systems that provide the deployable combat capability to the Littoral Combat Ship (LCS) Mission Package (MP).

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4248 / Legacy Airborne MCM
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A — **Other Related Program Elements:** 0604373N
Line Item MDAP/MAIS Code: N/A	

Exhibits Schedule					Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	1 / MODIFICATIONS				- / 90.842	- / 4.212	- / 6.674	- / 4.446	- / 0.000	- / 4.446
P-5	2 / AN/AQS-24 Sonar	P-5a, P-21			- / 94.834	- / 10.970	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-5	3 / MK-105				- / 20.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-5	4 / AMNS				- / 77.509	- / 0.408	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-5	5 / ALMDS [ALMDS]				- / 109.326	- / 0.408	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-5	7 / OAMCM [OAMCM]				- / 115.094	- / 0.000	- / 0.000	- / 0.000	- / 0.000	- / 0.000
P-40	**Total Gross/Weapon System Cost**				**- / 507.605**	**- / 15.998**	**- / 6.674**	**- / 4.446**	**- / 0.000**	**- / 4.446**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
FY 2022 funding supports modifications, product improvements and engineering change proposals of the ALMDS, SeaFox and AN/AQS-24 systems. These modifications will be deployed around the world to meet the current mine warfare mission demand.

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4248 / Legacy Airborne MCM	**Item Number / Title [DODIC]:** 1 / MODIFICATIONS
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	90.842	4.212	6.674	4.446	0.000	4.446
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	90.842	4.212	6.674	4.446	0.000	4.446
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**90.842**	**4.212**	**6.674**	**4.446**	**0.000**	**4.446**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - S0020 MODIFICATIONS Cost																		
Recurring Cost																		
1.1.1) S0020 - MODIFICATION	-	-	90.842	-	-	4.212	-	-	6.674	-	-	4.446	-	-	0.000	-	-	4.446
Subtotal: Recurring Cost	-	-	*90.842*	-	-	*4.212*	-	-	*6.674*	-	-	*4.446*	-	-	*0.000*	-	-	*4.446*
Subtotal: Hardware - S0020 MODIFICATIONS Cost	**-**	**-**	***90.842***	**-**	**-**	***4.212***	**-**	**-**	***6.674***	**-**	**-**	***4.446***	**-**	**-**	***0.000***	**-**	**-**	***4.446***
Gross/Weapon System Cost	**-**	**-**	**90.842**	**-**	**-**	**4.212**	**-**	**-**	**6.674**	**-**	**-**	**4.446**	**-**	**-**	**0.000**	**-**	**-**	**4.446**

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4248 / Legacy Airborne MCM	**Item Number / Title [DODIC]:** 2 / AN/AQS-24 Sonar
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	94.834	10.970	0.000	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	94.834	10.970	0.000	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**94.834**	**10.970**	**0.000**	**0.000**	**0.000**	**0.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - S0024 AN/AQS-24 Sonar Cost																		
Recurring Cost																		
1.1.1) AN/AQS-24B - upgrade kit	2,126K	27	57.400	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) AN/AQS-24C - Upgrade kit(†)	2,385K	10	23.854	560,000.00	15	8.400	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) Training Equipment(†)	3,040K	3	9.120	428,333.00	6	2.570	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.4) ILS/Tech Pubs	-	-	0.960	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.5) Q-24 Laser Line Scan Upgrade(†)	350,000.00	10	3.500	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*94.834*	-	-	*10.970*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - S0024 AN/AQS-24 Sonar Cost	**-**	**-**	***94.834***	**-**	**-**	***10.970***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Gross/Weapon System Cost	**-**	**-**	**94.834**	**-**	**-**	**10.970**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

(†) indicates the presence of a P-5a

Exhibit P-5a, Procurement History and Planning: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM	Item Number / Title [DODIC]: 2 / AN/AQS-24 Sonar

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.2) AN/AQS-24C - Upgrade kit(†)		2017	Northrop Grumman* / Annapolis, MD	C / FFP	NAVSEA	Jun 2018	Dec 2019	8	2,352K	Y		
1.1.2) AN/AQS-24C - Upgrade kit(†)		2018	Northrop Grumman* / Annapolis, MD	SS / FFP	NAVSEA	Jun 2018	Dec 2019	2	2,518K	Y		
1.1.2) AN/AQS-24C - Upgrade kit(†)		2020	Northrop Grumman / Panama City, FL	C / FFP	NAVSEA	Dec 2019	Jan 2021	15	560,000.00	Y		
1.1.3) Training Equipment		2019	TBD / NAWC TSD	SS / FFP	** NO PCO **	Sep 2019	Sep 2020	2	664,500.00	Y		
1.1.3) Training Equipment		2020	TBD / NAWC TSD	SS / FFP	** NO PCO **	Dec 2019	Dec 2020	6	428,333.00	Y		
1.1.5) Q-24 Laser Line Scan Upgrade		2019	Northrop Grumman / Panama City, FL	C / CPFF	** NO PCO **	Dec 2019	Feb 2021	10	350,000.00	Y		

(†) indicates the presence of a P-21

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4248 / Legacy Airborne MCM	**Item Number / Title [DODIC]:** 2 / AN/AQS-24 Sonar

Cost Elements (Units in Each)							Fiscal Year 2018												Fiscal Year 2019											BALANCE
							Calendar Year 2018												Calendar Year 2019											
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2017	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) AN/AQS-24C - Upgrade kit																														
	1	2017	NAVY	8	0	8									A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
	1	2018	NAVY	2	0	2									A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	2	2020	NAVY	15	0	15																									15
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM	Item Number / Title [DODIC]: 2 / AN/AQS-24 Sonar

Cost Elements (Units in Each)							Fiscal Year 2020												Fiscal Year 2021												BALANCE
							Calendar Year 2020												Calendar Year 2021													
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) AN/AQS-24C - Upgrade kit																															
	1	2017	NAVY	8	0	8	-	-	2	2	2	2																			0
	1	2018	NAVY	2	0	2	-	-	1	-	-	-	1																		0
	2	2020	NAVY	15	0	15			A -	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	1		0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4248 / Legacy Airborne MCM	**Item Number / Title [DODIC]:** 2 / AN/AQS-24 Sonar

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2022	1-8-5 For 2022	MAX For 2022	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	Northrop Grumman* - Annapolis, MD	2	5	18	0	0	18	18	0	0	18	18
2	Northrop Grumman - Panama City, FL	2	5	18	0	0	13	13	0	0	13	13

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4248 / Legacy Airborne MCM	**Item Number / Title [DODIC]:** 3 / MK-105
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	20.000	0.000	0.000	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	20.000	0.000	0.000	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**20.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - S0061 - MK-105 MOD 4 Cost																		
Recurring Cost																		
1.1.1) MK-105 MOD 4	16,600K	1	16.600	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) Production Line Set-Up	-	-	3.400	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*20.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - S0061 - MK-105 MOD 4 Cost	**-**	**-**	***20.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Gross/Weapon System Cost	**-**	**-**	**20.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM	Item Number / Title [DODIC]: 4 / AMNS
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	77.509	0.408	0.000	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	77.509	0.408	0.000	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**77.509**	**0.408**	**0.000**	**0.000**	**0.000**	**0.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - S0065 - AMNS Cost																		
Recurring Cost																		
1.1.1) AMNS	2,116K	17	35.965	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) AMNS (MH-53E)	-	-	3.860	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) PRODUCTION ENGINEERING	-	-	2.587	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.4) TRAINING EQUIPMENT	-	-	4.967	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.5) ILS/PUBS/ TECH DATA	-	-	2.089	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.6) SUPPORT EQUIPMENT	-	-	7.114	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.7) ECP (HW/SW) and Upgrades	-	-	20.927	-	-	0.408	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*77.509*	-	-	*0.408*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - S0065 - AMNS Cost	**-**	**-**	***77.509***	**-**	**-**	***0.408***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Gross/Weapon System Cost	**-**	**-**	**77.509**	**-**	**-**	**0.408**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4248 / Legacy Airborne MCM	Item Number / Title [DODIC]: 5 / ALMDS [ALMDS]
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	109.326	0.408	0.000	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	109.326	0.408	0.000	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**109.326**	**0.408**	**0.000**	**0.000**	**0.000**	**0.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - S0075 - ALMDS Cost																		
Recurring Cost																		
1.1.1) ALMDS	7,354K	12	88.247	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) PRODUCTION ENGINEERING	-	-	8.776	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) PRODUCTION ECP (HW/SW)	-	-	7.535	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.4) TRAINING EQUIPMENT	-	-	0.976	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.5) ILS/PUBS/ TECH DATA	-	-	2.429	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.6) SUPPORT EQUIPMENT	-	-	1.363	-	-	0.408	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*109.326*	-	-	*0.408*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - S0075 - ALMDS Cost	**-**	**-**	***109.326***	**-**	**-**	***0.408***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Gross/Weapon System Cost	**-**	**-**	**109.326**	**-**	**-**	**0.408**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4248 / Legacy Airborne MCM	**Item Number / Title [DODIC]:** 7 / OAMCM [OAMCM]
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	115.094	0.000	0.000	0.000	0.000	0.000
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	115.094	0.000	0.000	0.000	0.000	0.000
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**115.094**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - S0090 - OAMCM Support Equipment Cost																		
Recurring Cost																		
1.1.1) OPMA	-	-	1.668	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) SNIUTT	-	-	1.380	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) ORCA	3,098K	2	6.195	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.4) Tow Cables	125,000.00	20	2.500	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*11.743*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - S0090 - OAMCM Support Equipment Cost	**-**	**-**	***11.743***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - Prior Years Cost																		
Recurring Cost																		
2.1.1) Prior Years Cumulative Funding	-	-	103.351	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*103.351*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - Prior Years Cost	**-**	**-**	***103.351***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Gross/Weapon System Cost	**-**	**-**	**115.094**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**	**-**	**-**	**0.000**

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Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4250 / Common Control System

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	0.497	0.792	1.189	1.470	0.000	1.470	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	0.497	0.792	1.189	1.470	0.000	1.470	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**0.497**	**0.792**	**1.189**	**1.470**	**0.000**	**1.470**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

OPN funding is required to procure and modify Common Control System (CCS) software.

This line item provides funding to CCS Software Production, Software/Production Engineering Support and Integrated Logistics Support for all platforms. The primary mission of CCS is to provide common control across the Navy's Unmanned Systems (UxSs) portfolio to add scalable and adaptable warfighting capability, implement robust cyber security attributes, leverage existing government owned products, eliminate redundant software development efforts, consolidate product support, encourage innovation, improve cost control and enable rapid integration of unmanned system (UxS) capabilities across Aviation, Surface, Sub-Surface, and Ground domains.

CCS is a ship/shore/airborne/expeditionary based common control system that provides Vehicle Management (VM) and Mission Management/Mission Planning (MM/MP) capabilities for Naval Group 1 through 5 Unmanned Air Vehicles (UAVs) as well as other domain UxSs. VM is the software that allows the operator to control the UxS. MM/MP is the software that allows the operator to create mission plans and control the UxS's sensors and payloads. CCS software is based on the Society of Automotive Engineers (SAE) Unmanned Control Segment (UCS) architecture which is a service oriented open architecture that is modular and scalable to meet evolving Service requirements and is also supportive of safety/airworthiness certification and cybersecurity certification and accreditation.

This program delivers CCS capability that enables the flexibility for Ground Control Systems (GCS) that could be ship, shore, airborne, or expeditionary based to operate multiple and dissimilar Naval UxSs. CCS includes a common framework, user interface, and common components that are integrated and tested with legacy platform components. CCS is constructed with an open and modular business model with robust cybersecurity implementation and provided as Government Furnished Equipment (GFE) to UxS contractors as required.

CCS was designated as the Navy's unmanned software solution for Navy UxS by OPNAV N9 on 31 JAN 2019.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4250 / Common Control System

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Exhibits Schedule					Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-40a	Common Control System				- / 0.497	- / 0.792	- / 1.189	- / 1.470	- / -	- / 1.470
P-40	**Total Gross/Weapon System Cost**				**- / 0.497**	**- / 0.792**	**- / 1.189**	**- / 1.470**	**- / 0.000**	**- / 1.470**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
FY 2022 funding is required to continue to support production, procurement, and delivery of CCS software to MQ-8 Fire Scout. Increase in FY 2022 supports production procurement and delivery of CCS software to UxS platforms, with associated System Integration (SI) support.

Items to be funded in this line include:

1.1) Software Production - CCS is comprised of government off-the shelf (GOTS) and commercial off-the-shelf (COTS) software which will initially be hosted on legacy platform hardware. CCS funding will procure all necessary items for software production and installation (discs, hard drives, network drawings, installation manuals, and software licenses required at installation). Software production increase due to increased number of licenses required for MQ-8 support.

1.2) Software/Production Engineering Support - The CCS program produces software releases via an incremental development process. These releases contain changes required to retain commonality and compatibility with supported platforms, correct deficiencies, and incrementally-field new capabilities. CCS software releases are independent of platform hardware buys. Software/Production and Engineering Support includes production support services, engineering support services, acceptance tests, certifications, site activation, cybersecurity compliance and quality assurance efforts. Software/Production Engineering Support has increased due to the number licenses procured to support the UxS systems.

1.3) Integrated Logistics Support - The CCS program will conduct on-site logistics evaluations to verify installation configurations and installation media compliant with the specified configuration. This includes the production, update and delivery of technical documentation (Technical Directives and associated compliance).

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4250 / Common Control System	**Aggregated Items Title:** Common Control System

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
			Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
1) Common Control System																				
1.1) Software Production	A		-	-	0.146	-	-	0.148	-	-	0.203	-	-	0.291	-	-	-	-	-	0.291
1.2) Software/ Production Engineering Support (1)	A		-	-	0.351	-	-	0.547	-	-	0.889	-	-	1.082	-	-	-	-	-	1.082
1.3) Integrated Logistics Support	A		-	-	-	-	-	0.097	-	-	0.097	-	-	0.097	-	-	-	-	-	0.097
Subtotal: 1) Common Control System			**-**	**-**	***0.497***	**-**	**-**	***0.792***	**-**	**-**	***1.189***	**-**	**-**	***1.470***	**-**	**-**	**-**	**-**	**-**	***1.470***
Total			**-**	**-**	**0.497**	**-**	**-**	**0.792**	**-**	**-**	**1.189**	**-**	**-**	**1.470**	**-**	**-**	**-**	**-**	**-**	**1.470**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

Footnotes:

(1) Software/Production and Engineering Support includes production support services, engineering support services, acceptance tests, certifications, site activation, cybersecurity compliance and quality assurance efforts. Increases across the FYDP are due to the increased number of licenses procured for supported UxS systems.

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Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment

ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	228.768	62.871	57.174	70.665	0.000	70.665	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	228.768	62.871	57.174	70.665	0.000	70.665	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**228.768**	**62.871**	**57.174**	**70.665**	**0.000**	**70.665**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	1.185	-	1.185	-	-	-	-	-	-
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

The FY 2022 funding request was reduced by $2 million to account for the availability of prior year execution balances.

Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE) (S7039): DECKPLATE is the next generation of Naval Aviation Logistics Data Analysis (NALDA) and will interface with Navy Enterprise Resource Planning (ERP) as the Naval Aviation Business Warehouse. It provides the technological improvements and process streamlining required to enable a cost wise transition from the NALDA program to the capabilities required in Joint Vision 2020 and the Naval Transformation Road Map. DECKPLATE is a Commercial Off the Shelf (COTS) intensive system under which numerous stovepipe legacy systems will migrate to create an integrated data environment through the use of Data Warehouse tools and concepts in support of Naval aviation logistics needs. This is being accomplished by upgrading current Naval Aviation logistics reporting mechanisms through the procurement and installation of a fully-licensed, warranted, secure, standardized, COTS, user-friendly, web-based relational database environment. Funding is required to procure the necessary hardware, networking, systems, applications software, infrastructure, and associated engineering and installation support.

Naval Aviation Logistics Command Management Information System/NAVAIR Fleet System Array (NALCOMIS/NFSA) (S7041): Funding supports procurement of HW/SW for technical refresh for both shipboard and afloat units. As Optimized Organizational Maintenance Activity (OOMA) and Optimized Intermediate Maintenance Activity (OIMA) approach full implementation, NALCOMIS (also identified as Naval Air Systems Command Fleet Systems Array (NFSA)) is responsible for implementation of Mid Tier Servers at 75+ sites both shipboard and shore based. These Mid Tier Servers replicate data from the Organizational and Intermediate level maintenance activities to the NALDA Upline processing center to provide near-real time data to decision makers at all levels. The Mid Tier also allows data to be pushed from Headquarters activities to the fleet to support maintenance activities.

Joint Technical Data Integration (JTDI) (S7042): Funding supports procurement of JTDI for installation on all Carrier (CV) and Amphibious Assault (L) class ships and up to 104 Navy/Marine Corps aviation activities. JTDI is a digital technical data access, delivery and local O&I level library management toolset and telemaintenance collaboration process enabler. It improves accuracy and timeliness of technical manual and other technical data delivery and minimizes the Fleet's library management burden. JTDI reduces maintenance manhours with savings Return on Investment (ROI) of 2.5:1 and savings/avoidance ROI of 9.5:1. It facilitates the transition of the Joint Distance Support and Response (JDSR) Advanced Concept Technology Demonstration (ACTD) for telemaintenance and provides for process efficiencies to support ongoing Aviation Fleet Technical Representative reductions. The ability to realize the full benefits of investment in smart aircraft systems and associated prognostics and health management technologies and the ability to deliver CBM+ data to improve decision making related to the design, acquisition, engineering, and maintenance of Ready Basic Aircraft (RBA) will be lost without the implementation and technical refresh of the SDR.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	P-1 Line Item Number / Title: 4268 / Aviation Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

Automated Data Capture System (ADCS) (S7047): ADCS is a user friendly, interactive mobile computing system currently in use at depot-level Fleet Readiness Centers to document and analyze aircraft discrepancies discovered during scheduled maintenance events. Inspectors use menu driven checklists plus digital aircraft and engine drawings during inspection and evaluation to create immediate discrepancy records and produce real time reports that fulfill customer and specification requirements. Requested funding will provide hardware and software for a lead-the-Fleet effort that will enable the organizational maintenance level to utilize ADCS to better document vital corrosion and wiring related discrepancy information. Once captured, this information will be analyzed by organizational level maintenance department personnel and depot level engineers to develop targeted mitigation strategies aimed at reducing or removing corrosion in identified areas. The results of the analysis made possible by using ADCS will greatly improve our understanding of where and how corrosion is affecting our aircraft, resulting in the formulation of statistically targeted area identification and sound attack strategies.

Condition Based Maintenance Plus (CBM+) (S7048): Condition Based Maintenance Plus (CBM+) The CBM+ solution is an initiative which provides Naval Aviation Enterprise with common enabling capabilities which deliver timely data-driven decisional information to optimize aircraft availability and materiel readiness by incorporating health and usage leading indicators into the failure mode mitigation process, enabling the Warfighter to more efficiently meet mission requirements through automated analysis and decision making processes. The CBM+ Initiative increases readiness through streamlined maintenance processes, actionable logistics/engineering data and integrated analytics not previously available, enabling engineers and acquisition professionals to support system improvements based on CBM+ acquired data and analytic results. CBM+ provides the enabling infrastructure and storage solutions within an Enterprise common environment needed to store and analyze weapon system sensor data to extend the life of current and new acquisition aircraft, realizing savings from reductions in field (organizational and intermediate) maintenance actions, reduced functional check flight hours, mishap mitigation, and reduced parts usage.

[P40A / S7070 FRC ASM upgrades]: Sustainment Vision 2020 will procure Advanced Skills Management (ASM) software updates from NUWC Keyport that will provide interfaces with the Defense Civilian Personnel Data System (DCPDS) and Time and Attendance system (TAA). Software procurement will include enhancements for Total Workforce Readiness Query's, additional ADHOC reports and procurement of an enterprise view or query of all ASM users at the Organizational, Intermediate and Depot level of maintenance. Procurement will also establish interfaces for Optimized Organizational Maintenance Activity (OOMA) for Organizational Level, Organizational Intermediate Maintenance Activity (OIMA) for Intermediate Level and NAVAIR Depot Maintenance System (NDMS) for Depot level.

The FY 2021 enacted includes congressional rescissions of $10,000,000 to FY20 Advance Skills Management Upgrades. However, these rescissions are not reflected on the P-40. The impact of these rescissions are reflected in the other cost elements.

[P5 / CSEL - SY060]: COMBAT SURVIVOR EVADER LOCATOR - SY060 (Baseline)
CSEL is an ACAT III Joint Service Program with the USAF as lead service. The CSEL Radio system provides US combat forces with secure, encrypted, low probability of exploitation, two-way, over the horizon, near real time
databurst communications with integral precise geopositioning; and non-secure, unencrypted line-of-sight voice and beacon capability to support survival, evasion, and personnel recovery operations. The user segment of the CSEL
system is composed of a battery operated Hand Held Radio (HHR) (AN/PRQ-7), a Radio Set Adapter (J-6431/PRQ-7), a Global Positioning System (GPS) antenna and coupler, and a laptop Central Processing Unit with software for
loading the HHR CSEL Planning Computer. CSEL is currently in sustainment.

[P5 / Survival Communication Devices - SY063]: SURVIVAL COMMUNICATION DEVICES - SY063 (Baseline)
Survival communication devices funding supports the USN and USMC requirement for a survival radio to be carried during all non-combat and combat operations. It includes a Non-Combat Survival Radio (NCSR) for non-combat operations and a separate radio for combat operations, Combat Survival Radio (CSR). By augmenting aircraft ejection seat locator beacons with auto-activate features in the Combat and Non-Combat radios, this funding also supports the FY21 NDAA requirement to mitigate "aircraft ejection seat locator beacons that are inoperable in water or wet conditions." Funding will continue procurement of the NCSR in FY22.

Legacy NCSRs are outdated and have not kept up with satellite rescue technology capability, and face critical obsolescence. A Commercial Off The Shelf (COTS) NCSR replacement will be procured to augment aircraft radio beacon sets. It will have the capability to mitigate delayed recovery of incapacitated aircrew in the maritime environment using auto-activate features.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	P-1 Line Item Number / Title: 4268 / Aviation Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

Funding will procure the next generation CSR, which will replace the legacy Combat Survivor Evader Locator (CSEL). This is the next generation/continuation of SY060. Legacy CSELs are outdated and have obsolescence and performance issues. The USAF-led Joint Program Office is currently developing a next-generation Combat Survival Radio (CSR) that will be used by multiple services enabling economic order pricing and interoperability

[P5 / Hearing Protection and Speech Intelligibility - SY218]: HEARING PROTECTION AND SPEECH INTELLIGIBILITY - SY218 (Baseline)
Hearing Protection and Speech Intelligibility will protect aircrew from temporary hearing damage and permanent hearing loss. Effective comprehension of radio or ICS transmissions for safety of flight and mission effectiveness. Implementation of improved hearing systems components, including helmets, earcups, ear seals, custom molded ear plugs, active noise reduction and microphones.

[P5 / LEP- SY080]: LASER EYE PROTECTION (LEP) - SY080 (Baseline)
The LEP program is a family of eye protection solutions that will provide Fixed Wing Ejection, Fixed Wing Non-Ejection and Rotary Wing/Tilt Rotor pilots and aircrew with multiple wavelength fixed threat and hazard protection during day and night unaided and Night Vision Goggle aided missions. LEP will consist of a suite of products to include spectacles, goggles, and visors. The LEP (visor, spectacle or goggle format) is being developed for compatibility with all required Aviation Life Support Equipment (ALSE) as well as cockpit displays, night vision, and fire control systems.

[P5 / JHMCS Night Vision - SY215]: [P5 / JHMCS Night Vision - SY215]: JOINT HELMET MOUNTED CUEING SYSTEM NIGHT VISION (JHMCS) - SY215 (Baseline)
NVCD extends Day JHMCS capabilities into night by providing the aircrew night vision with embedded JHMCS symbology and helmet cueing. This allows the aircrew to quickly identify and engage pre-planned targets, use slew-to-cue with onboard sensors to quickly locate and confirm threats and improves situational awareness by providing location data of friendly forces utilizing LINK-16. It has greatly improved first pass kills for our F/A-18 and EA-18 JHMCS equipped aircraft and improved survivability by reducing exposure to the threat.

[P5 / FDC - SY505]: FLIGHT DECK CRANIAL AND HEARING PROTECTION (FDC) - SY505 (Baseline)
Hearing loss is a significant cost driver across DoD in veteran disability compensation. Noise levels in Naval Aviation environments present a risk to permanent hearing loss in aircrew and aviation maintainers, if not mitigated. Joint efforts are underway to incrementally field improved technology solutions as they become available to better mitigate operator impacts. Increment 1 Double Hearing Protection (DHP) solutions were developed for aviation maintainers and began fielding in 2011. Increment 2 Triple Hearing Protection (THP) solutions will further improve noise reduction for more challenging environments. THP variants are also incorporating flight deck communications capability. Increment 3 will address associated design trade improvements, including weight reduction and center of gravity adjustments to reduce neck stresses, improved night vision/cueing mounts, and potential incorporation of maturing technologies such as active digital noise reduction/cancellation.

[P5 / Aviation Maintainer Head & Hearing Protection - SY510]: AVIATION MAINTAINER HEAD & HEARING PROTECTION - SY510 (Baseline)
Protection of maintainers from hazardous head and noise conditions and materials associated with aviation, as well as to ensure maintainer safety and optimize their performance in austere environments to support quality of aircraft maintenance for warfighting. The program involves analysis, modification and qualification of COTS, helmet and low-profile hearing protection and other Personal Protective Equipment (PPE).

[P5 / EVA - SY217]: ENHANCED VISUAL ACUITY (EVA) - SY217 (Baseline)
EVA introduces digital night vision capability to Aircrew, a game-changing improvement over current analog night vision goggles. EVA provides an advanced night vision/Helmet Mounted Display capability to address validated capability gaps in low and no light illumination levels (night vision) and improved visual situational awareness in Degraded Visual Environment (DVE), which continues to drive substantial losses of aircraft and aircrew (37 aircraft, 106 lives lost since 2001). The program addresses Night Vision Goggle technology shortfalls (low light, halo and blooming effects in urban environments and reduced contrast associated with scintillation), and the digital architecture of the system provides the ability to field improved tactical advantages incrementally. EVA will have the ability to be upgraded to serve as the heads-up display platform for presentation of virtual imagery and symbology overlay from fused sensor data that will mitigate DVE.

[P5 / Physiological Monitoring - SY127]: PHYSIOLOGICAL MONITORING - SY127 (Baseline)
Directly addresses Naval Aviation's #1 Safety concern, PHYSIOLOGICAL EPISODES (PE), by measuring human performance and alerting Aircrew preventing injury, death, and/or damage to aircraft. Although the occurrence rate
is declining, there has been no definitive single causal factor identified for the Physiological Episodes being experienced by pilots using On-Board Oxygen Generation Systems (OBOGS) components. Consequently, in addition to the

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	P-1 Line Item Number / Title: 4268 / Aviation Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

OBOGS hardware improvements, The Physiological Episodes Action Team considers operator physiological monitoring to be a key component of the total protection solution set. This initiative is leveraging Defense Innovation Unit
and Cooperative Research and Development Agreements to assess mature technologies and products to field a system that monitors pilot physiological parameters. The system will constantly monitor biometrics and pilot performance to identify state of health or performance degradation that may result in loss of consciousness or ability to safely conduct the flight. This system will provide the operator with enough advance warning to accurately assess the situation and safely recover the aircraft. Multiple potential solutions are being evaluated to select a best of breed or blended solution. Since the aircrew responses to PE are so diverse, the solutions' data computation and warning algorithms will need to be iteratively adjusted over time using extensive operator usage feedback data.

[P5 / Recompression Chamber - SY128]: RECOMPRESSION CHAMBER - SY128 (Baseline)
Physiological Episode (PE): Procure 4 recompression chambers via NAVSEA contract vehicle in support of physiological episodes mitigation. Recompression chambers to be used aboard deploying CVN to treat PE symptomatic Aircrew. The Standard Navy Double Lock Recompression Chamber System (SNDLRCS) provides treatment to naval aviators who are symptomatic of, or experience Type I or Type II Decompression Sickness (DCS), as a result of a Physiological Episode (PE). The SNDLRCS is the only RCS that accommodates two aircrew and the chamber operator, ensuring appropriate treatment of aircrew in two-seat aircraft.

[P5 / ASIP - SY126]: AIRCREW SYSTEMS IMPROVEMENT PROGRAM (ASIP) - SY126 (Baseline)
ASIP is modeled after the platform Operational Safety Improvement Program (OSIP) concept, with the objective of supporting the human (aircrew and aviation maintainers) as the weapon system platform. The Aircrew Systems
portfolio exceeds 1000 products. The majority of these products are Aviation Life Support Systems/Equipment (ALSS/E) that directly affect aircrew and aviation maintainer personnel safety and survivability, both in combat and
non-combat operations. Other systems enhance aircrew and maintainer performance as the human element of the total weapon platform by enabling effective warfighting at night and physical endurance over extended missions.
As legacy products age and missions are modified to address evolving threats and tactics, Fleet operators identify several items each year that must be modified to ensure safety and survivability. ASIP funding enables the program
office to proactively manage or rapidly react to discrepancies and deficiencies across the broad portfolio. ASIP provides the resources to correct such issues via lower scope Non-Recurring Engineering (NRE) efforts and Engineering
Change Proposals (ECPs), and/or qualification and procurement of improved capability commercial off-the-shelf (COTS), Non-Developmental Items (NDI) from industry or other service counterparts. Correction and enhancement efforts range from minor adjustments to survival kit items (such as brighter, lighter and longer-lasting illumination devices and signaling rescue devices) to major obsolescence follow-on solutions. ASIP enables the program office to address smaller scope but critical Fleet issues that individually cannot compete with major POM issues, but which each individually can save lives. Aircrew Systems products are utilized in extreme climates, combat operations and rescue/recovery scenarios in which each component must work the first time, every time. System solutions managed include but are not limited to fire retardant clothing, head and hearing protection, communication, extreme climate exposure protection, ballistic protection, laser eye protection, hydration systems, waste removal systems, night vision systems, head-mounted displays, chemical biological exposure protection, oxygen provision, g-force protection, physiological condition monitoring systems, ejection seats and parachutes, aircrew seats and harnesses/restraints, survival flotation, survival kit items and survival signaling devices. This model enables the program office to shift resources as necessary to be more agile in addressing issues, based upon assessment of Fleet prioritization of identified issues combined with the level of improvement that a potential solution can provide and the degree of maturity of that solution (readiness to be fielded). This budget exhibit will present the latest planned activities for the upcoming execution year, and then document adjustments experienced during execution based upon higher priority pop-up issues, adjustments to procurement orders to capture efficiencies with step-ladder pricing, and changes resulting when a modification or qualification effort determines that a product correction/improvement is unsuccessful. The major efforts presented above in this ASIP line will still be described and detailed individually.

[P5 / ASIP - Bladder Relief - SY132]: ASIP - BLADDER RELIEF - SY132
Procurement of replacement bladder relief products for aircrew operating in fixed seat positions during extended missions. This is a major issue for female aircrew. Inability to relieve the bladder can cause significant distraction and loss of mission effectiveness, as well as physical internal damage or infection.. Current bladder relief products are inadequate to support liquid waste relief in Naval Aircraft, especially for ejection seat aircraft. Modern technology applications and solution enhancements will be safer for aircrew use and reduce maintenance for overall improved aircrew operational performance.

[P5 / ASIP - LPU - SY134]: ASIP - LIFE PRESERVER UNIT (LPU) - SY134

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	P-1 Line Item Number / Title: 4268 / Aviation Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

Legacy Life Preserver Units (LPUs) are bulky and heavy, restricting operator mobility and contributing to fatigue over extended missions. The weight and bulk also contribute to long-term chronic back/spine injuries and can present additional risk of snag hazards during emergency egress. Superior new materials present the opportunity to improve flotation, enhance flotation orientation designs and reduce bulk and weight.

[P5 / ASIP - JCAST - SY135]: ASIP - JOINT CREW AVIATION SYSTEM TESTER (JCAST) - SY135
JCAST units are used to validate integrity of aircrew helmet and oxygen mask fit to reduce the risk of physiological episode or hypoxia. JCAST provides preflight assessment of oxygen flow through the man-mounted system, which ensures survivability of aircrew in flight.

[P5 / ASIP - TACAIR Pivot Shelf Mod Kits - SY137]: ASIP - TACAIR Pivot Shelf Mod Kits - SY137
Currently USN/USMC TACAIR configuration Night Vision Goggles (NVGs) have not been modified with the new tilt lock mechanism. This initiative funds procurement of the modified tilt locking mechanisms required to upgrade all TACAIR NVGs.

[P5 / ASIP - UWARS and NACES Risers - SY138]: ASIP - Universal Water Activated Release System (UWARS) - SY138
Qualify Universal Water Activated Release System (UWARS) to replace Sea Water Activated Release (SEAWARS) on Navy Aircrew Common Ejection Seats (NACES) Risers. Newer ejection seats have risers that are detachable outside the headbox and allow risers to be changed at the O-level without repacking the entire parachute assembly. This will enhance readiness, lower throughput requirements at the I-level and annually save thousands of maintenance work hours for the next 20+ years that NACES is expected to be in the fleet.

[P5 - 2 / S6001 Portable Electronic Maintenance Aids (PEMAs)]: Due to a change in the acquisition strategy the Portable Maintenance Aids (PEMA) program is now known as the Aviation Maintenance Advancement Solutions (AMAS) program. AMAS integrates the PEMA program with the Standard PEMA Cyber Solution (SPECS) program supporting maintenance activities within the Navy's inventory.

[P5 - 2 / S6003 Aviation Maintenance Advancement Solution]: Aviation Maintenance Advancement Solution]: Aviation Maintenance Advancement Solutions (AMAS) program integrates the Portable Electronic Maintenance Aid (PEMA) with the Standard PEMA Cyber Solution(SPECS) programs. The AMAS program will continue to deliver PEMA capability by providing Commercial-Off-The-Shelf (COTS) hardware integrated with Standard PEMA Cyber Solution (SPECS) Government-Off-The-Shelf(GOTS) software solution. AMAS creates an integrated, cost efficient maintenance and logistics support system for the warfighter. PEMA hardware is an unclassified support equipment device used by maintenance personnel to perform maintenance, inspection, fault diagnosis, and repair tasks in direct support of a Weapon System. PEMA hardware serves as a host for Interactive Electronic Technical Manuals, Automated Logistics Environment and Diagnostic/Prognostic applications. SPECS software takes advantage of advance information technologies available in areas of personal computer networks, data communications, automatic Technical Publication and Software Information Assurance Availability Alert (IAVA) distribution, Host Based Security System (HBSS) Common Access Card (CAC)/Public Key Infrastructure (PKI), Full Disk Encryption and Assured Compliance Assessment Solution (ACAS). The employment of these technologies enables the warfighter to focus on the mission while realizing increased efficiencies, improved security compliance, and reduction in sustainment costs over time.

[P3A / ALIS - Program Support]: Autonomic Logistics Information System (ALIS) Ship Integration - CVN, LHD, LHA: ALIS controls all aspects of F-35 mission planning, maintenance, logistics, and supply functions. Funding for ALIS Ship Integration efforts (Programmatic Support, Engineering Support Services, Material, and Installation efforts) will enable shipboard (CVN, LHD, LHA) modification, classified/ unclassified network integration, the installation of ALIS-related shipboard equipment, ALIS security accreditation, and verification of ALIS operation and functionality to include the integration of ALIS with shipboard Command, Control, Communications and Computers & Intelligence (C4I) Networks and the Prognostic Health Management (PHM) downlink. At the completion of each installation, the respective ship's ALIS will enable the F-35 system to provide, at the appropriate security levels via Navy Local Area Networks (LANs)/Wide Area Networks (WANs), the ability to transfer time-sensitive data for logistics support, mission planning, mission execution, and mission debriefing.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment
ID Code (A=Service Ready, B=Not Service Ready): B	**Program Elements for Code B Items:** N/A / **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Exhibits Schedule					Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-40a	Other Aviation Support Equipment	P-5a			- / 30.509	- / 17.785	- / 17.886	- / 7.756	- / -	- / 7.756
P-5	1 / Aviation Life Support	P-5a, P-21			- / 129.753	- / 33.344	- / 22.205	- / 43.633	- / 0.000	- / 43.633
P-5	2 / Aviation Maintenance Advancement Solutions (AMAS)	P-5a, P-21			- / 49.846	- / 7.962	- / 13.319	- / 15.539	- / 0.000	- / 15.539
P-3a	1 / ALIS SHIP INSTALLATION (Add Capability)				- / 18.660	- / 3.780	- / 3.764	- / 3.737	- / 0.000	- / 3.737
P-40	**Total Gross/Weapon System Cost**				**- / 228.768**	**- / 62.871**	**- / 57.174**	**- / 70.665**	**- / 0.000**	**- / 70.665**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications. Title represents the P-40a Title when only the P-40a Summary/Total is shown.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:
The FY 2022 Budget Request includes funding for the following ($70.665M):

P-40a (S7042), $2.169M
Other Aviation Support Equipment - the procurement of hardware and associated support costs for JTDI (S7042). Funding includes procurement of hardware, software, and installation costs to modernize CBM + standard data repository (SDR), scale the CBM+ SDR analytics infrastructure to integrate additional weapon system platforms, and provide core analytics at the edge. SDR & CBM+ capabilities will drive NAE Total Ownership Cost down. The ability to realize the full benefits of investment in smart aircraft systems and associated prognostics and health management technologies and the ability to deliver CBM+ data to improve decision making related to the design, acquisition, engineering, and maintenance of Ready Basic Aircraft (RBA) will be lost without the implementation and technical refresh of the SDR.

P-40a (S7048), $0.241M
Other Aviation Support Equipment - the procurement of hardware and associated support costs for CBM+ (S7048).

P-40a (S7041), $2.483M
Other Aviation Support Equipment - Naval Aviation Logistics Command Management Information System/Naval Air Systems Command Fleet System Array (NALCOMIS/NFSA)(S7041) consists of the purchase of multiple components, which includes servers, peripheral hardware and software rack mounted into one server suite. Funds are required to manage obsolescence and comply with CYBER WARFARE/XP Migration and fleet data replication and analysis processes used to monitor safety and readiness of the Fleet as well as the ability to comply with mandatory Information Security (IA) mandates, which would lead to IT system shutdown without adherence.

P-40A (S7039), $1.674M
Naval Aviation Logistics Data Analysis Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE)(S7039) consists of the purchase of multiple components, which includes servers, peripheral hardware and software rack mounted into one server suite. Funds are required to manage obsolescence and comply with CYBER WARFARE/ and fleet data replication and analysis processes used to monitor safety and readiness of the Fleet as well as the ability to comply with mandatory Information Security (IA) mandates, which would lead to IT system shutdown without adherence. Analysis of cloud solutions may be required as we modernize and align DECKPLATE to future warehousing requirements such as Vision 2020, the future Naval Aviation Maintenance System (NAMS), and the Automated Logistics Environment.

P-40a (S7833), $1.189M

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	P-1 Line Item Number / Title: 4268 / Aviation Support Equipment	
ID Code (A=Service Ready, B=Not Service Ready): B	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

Other Aviation Support Equipment - Production Engineering Support provided in support of Naval Aviation Logistics Data Analysis Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE)(S7039), Joint Technical Data Integration (JTDI) (S7042), Condition Based Maintenance Plus (CBM+) (S7048), and Naval Aviation Logistics Command Management Information System/NAVAIR Fleet System Array (NALCOMIS/NFSA) (S7041).

P-5/1, $43.633M(Baseline)
Aviation Life Support - the procurement of hardware and associated support costs for:
Laser Eye Protection (LEP), which will provide Fixed Wing Ejection, Fixed Wing Non-Ejection and Rotary Wing/Tilt Rotor pilots and aircrew with multiple wavelength fixed threat and hazard protection during day and night unaided and Night Vision Goggle aided missions, increasing aircrew lethality and resilience. JHMCS Night Vision Cueing and Display devices and Peculiar Support Equipment which extend Day JHMCS capabilities into night by providing the aircrew night vision with embedded JHMCS symbology and helmet cueing. This allows the aircrew to quickly identify and engage pre-planned targets, use slew-to-cue with onboard sensors to quickly locate and confirm threats and improves situational awareness by providing location data of friendly forces utilizing LINK-16. It has greatly improved first pass kills for our F/A-18 and EA-18 JHMCS equipped aircraft and improved survivability by reducing exposure to the threat, thus increasing the lethality and agility of F/A-18 and EA-18G aircrew. Procurement of Non Combat Survival Radio (NCSR) and an FY21 NDAA Congressional requirement for improved Passive Signal Device (PSD), which will augment aircraft radio beacon sets and will have the capability to mitigate delayed recovery of incapacitated aircrew with auto-activated features. FDC helmets, which will protect maintainers from temporary hearing damage and permanent hearing loss increasing the resilience of flight line personnel while increasing their comprehension of radio or ICS transmissions for increased mission effectiveness. Inflight Bladder Relief Kits, which will address a major issue for female aircrew and improve their mission effectiveness. The inability to relieve the bladder can cause significant distraction and loss of mission effectiveness, as well as physical internal damage or infection. Technologically up-to-date Life Preserver Units (LPU) and aircrew vest solutions, which will improve the weight and bulk mitigating long-term chronic back/spine injuries, improving the resilience of fixed and rotary wing aircrew. TACAIR NVG adjustment shelves, which will provide modified USN/USMC TACAIR Night Vision Goggles (NVGs) with a more effective tilt lock mechanism, improving TACAIR aircrew lethality. Universal Water Activated Release System (UWARS) and Navy Aircrew Common Ejection Seats (NACES) risers, which will replace Sea Water Activated Release (SEAWARS) on NACES Risers. Newer ejection seats have risers that are detachable outside the headbox and allow risers to be changed at the O-level without repacking the entire parachute assembly. This will enhance readiness, lower throughput requirements at the I-level and annually save thousands of maintenance work hours for the next 20+ years that NACES is expected to be operational. NACES sequencer test set, which will verify functionality of new ejection seat sequencers, ensuring safe and effective emergency egress systems for TACAIR and jet trainer aircraft. Joint Combined Aircrew Systems Tester (JCAST), which are used to validate integrity of aircrew helmet and oxygen mask fit to reduce the risk of physiological episodes. JCAST provides preflight assessment of oxygen flow through the man-mounted system, which ensures survivability of aircrew in flight.

P-5/2, $15.539M
Aviation Maintenance Advancement Solution (AMAS)- the procurement of hardware, associated support and software cost for 3,334 Portable Electronic Maintenance Aid (PEMA) units in FY 2022.

P-3a/1 $3.737M
Autonomic Logistics Info Systems (ALIS) - supports Design Support Activities (DSA) to include material purchases for the installation of two (2) ALIS in FY 2022.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Aggregated Items Title:** Other Aviation Support Equipment (1)

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
			Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
1) Naval Aviation Logistics Data Analysis Decision Knowledge Programming for Logistics Analys																				
1.1) S7039 - Aviation Data Warehouse Environment (2)(†)	A		7,493K	1	7.493	1,700K	1	1.700	1,720K	1	1.720	1,674K	1	1.674	-	-	-	1,674K	1	1.674
Subtotal: 1) Naval Aviation Logistics Data Analysis Decision Knowledge Programming for Logistics Analys			**-**	**-**	***7.493***	**-**	**-**	***1.700***	**-**	**-**	***1.720***	**-**	**-**	***1.674***	**-**	**-**	**-**	**-**	**-**	***1.674***
2) Naval Aviation Logistics Command Management Information System/Naval Air Systems Command F																				
2.1) S7041 - NFSA HW/SW (3)(†)	A		9,717K	1	9.717	2,468K	1	2.468	2,522K	1	2.522	2,483K	1	2.483	-	-	-	2,483K	1	2.483
Subtotal: 2) Naval Aviation Logistics Command Management Information System/Naval Air Systems Command F			**-**	**-**	***9.717***	**-**	**-**	***2.468***	**-**	**-**	***2.522***	**-**	**-**	***2.483***	**-**	**-**	**-**	**-**	**-**	***2.483***
3) Joint Technical Data Integration (JTDI)																				
3.1) S7042 - JTDI HW/SW (4)(†)	A		4,652K	1	4.652	2,172K	1	2.172	2,199K	1	2.199	2,169K	1	2.169	-	-	-	2,169K	1	2.169
Subtotal: 3) Joint Technical Data Integration (JTDI)			**-**	**-**	***4.652***	**-**	**-**	***2.172***	**-**	**-**	***2.199***	**-**	**-**	***2.169***	**-**	**-**	**-**	**-**	**-**	***2.169***
4) Marine Aviation Logistics Enterprise Information Technology (MAL-EIT)/Expeditionary Pack U																				
4.1) S7046 - EPUK HW/SW	B		1,565K	1	1.565	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 4) Marine Aviation Logistics Enterprise Information Technology (MAL-EIT)/Expeditionary Pack U			**-**	**-**	***1.565***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
5) Automated Data Capture System (ADCS)																				
5.1) S7047 - ADCS HW/SW	B		207,000.00	1	0.207	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 5) Automated Data Capture System (ADCS)			**-**	**-**	***0.207***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
6) Condition Based Maintenance Plus (CBM+)																				
6.1) S7048 - CBM+ HW/SW (5)(†)	A		651,000.00	1	0.651	242,664.00	1	0.243	244,000.00	1	0.244	241,000.00	1	0.241	-	-	-	241,000.00	1	0.241
Subtotal: 6) Condition Based Maintenance Plus (CBM+)			**-**	**-**	***0.651***	**-**	**-**	***0.243***	**-**	**-**	***0.244***	**-**	**-**	***0.241***	**-**	**-**	**-**	**-**	**-**	***0.241***
7) Production Engineering Support																				
7.1) S7833 - Marine Aviation Logistics Enterprise Information Technology	A		-	-	0.114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Aggregated Items Title:** Other Aviation Support Equipment (1)

Item Number / Title [DODIC]	ID CD	MDAP/ MAIS Code	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
			Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
7.2) S7833 - Aviation Data Warehouse Environment	A		-	-	2.191	-	-	0.521	-	-	0.518	-	-	0.522	-	-	-	-	-	0.522
7.3) S7833 - Naval Air Systems Command Fleet System Arrays	A		-	-	2.335	-	-	0.445	-	-	0.446	-	-	0.437	-	-	-	-	-	0.437
7.4) S7833 - Joint Technical Data Integration	A		-	-	1.276	-	-	0.193	-	-	0.193	-	-	0.186	-	-	-	-	-	0.186
7.5) S7833 - Automated Data Capture System	A		-	-	0.124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.6) S7833 - Condition Based Maintenance Plus	A		-	-	0.184	-	-	0.043	-	-	0.044	-	-	0.044	-	-	-	-	-	0.044
Subtotal: 7) Production Engineering Support			**-**	**-**	***6.224***	**-**	**-**	***1.202***	**-**	**-**	***1.201***	**-**	**-**	***1.189***	**-**	**-**	**-**	**-**	**-**	***1.189***
8) FRC ASM upgrades																				
8.1) S7070 FRC ASM upgrades (6)	A		-	-	-	-	-	-	-	-	10.000	-	-	-	-	-	-	-	-	-
Subtotal: 8) FRC ASM upgrades			**-**	**-**	***0.000***	**-**	**-**	**-**	**-**	**-**	***10.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
9) FY 2021 Enacted Rescissions																				
9.1) FY21 Enacted Rescissions (7)	A		-	-	-	-	-	10.000	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal: 9) FY 2021 Enacted Rescissions			**-**	**-**	***0.000***	**-**	**-**	***10.000***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total			**-**	**-**	**30.509**	**-**	**-**	**17.785**	**-**	**-**	**17.886**	**-**	**-**	**7.756**	**-**	**-**	**-**	**-**	**-**	**7.756**

Note: Subtotals or Totals in this Exhibit P-40a may not be exact or sum exactly, due to rounding.

(†) indicates the presence of a P-5a

Footnotes:

(1) Program provides for the acquisition, upgrade, and production support of aviation life support systems required for the personal safety and protection of aircrew against the hazards encountered in the aircraft operating environment and for safe recovery of downed aircrew.

(2) Naval Aviation Logistics Data Analysis Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE)(S7039) - The unit cost reflects the total of all suites being procured in each fiscal year. FY22 decrease to meet Department of the Navy Logistics (LOG) Information Technology (IT) consolidation and Digital Transformation initiatives, enabling the use of shared hardware, software and related IT capabilities across the Data and Analysis Tools IPT.

(3) Naval Aviation Logistics Command Management Information System/Naval Air Systems Command Fleet System Array (NALCOMIS/NFSA) (S7041): The unit cost reflects the total of all suites being procured in each fiscal year. FY22 decrease to meet Department of Navy LOG-IT consolidation and digital transformation initiatives enabling a cloud based test environment capability.

(4) FY22 decrease to meet Department of Navy LOG-IT consolidation and digital transformation initiatives enabling a cloud based test environment capability.

(5) FY22 decrease to meet Department of the Navy LOG IT consolidation and Digital Transformation initiatives, enabling the use of shared hardware, software and related IT capabilities across the Data and Analysis Tools IPT.

(6) Fleet Readiness Center Advanced Skills Management Upgrades (FRC ASM) (S7070): The unit cost reflects the total of all suites being procured in each fiscal year.

Exhibit P-40a, Budget Item Justification For Aggregated Items: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Aggregated Items Title:** Other Aviation Support Equipment (1)

(7) FY 2021 Enacted Rescissions: The FY2021 enacted budget includes congressional rescissions of $10,000,000. However, these rescissions are not reflected on the P-40. The impact of these rescissions are reflected in the other cost elements.

Exhibit P-5a, Procurement History and Planning: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4268 / Aviation Support Equipment	Aggregated Items: Other Aviation Support Equipment (1)

Item Number / Title [DODIC]	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1) Naval Aviation Logistics Data Analysis Decision Knowledge Programming for Logistics Analys												
1.1) S7039 - Aviation Data Warehouse Environment (2)		2020	Teradata Government Systems / Germantown MD	C / CPFF	NAVAIR	Mar 2020	Mar 2021	1	1,700K	Y		Nov 2019
1.1) S7039 - Aviation Data Warehouse Environment (2)		2021	Teradata Government Systems / Germantown MD	C / CPFF	NAVAIR	Mar 2021	Mar 2022	1	1,720K	Y		Nov 2020
1.1) S7039 - Aviation Data Warehouse Environment (2)		2022	Teradata Government Systems / Germantown MD	C / CPFF	NAVAIR	Mar 2022	Mar 2023	1	1,674K	Y		Nov 2021
2) Naval Aviation Logistics Command Management Information System/Naval Air Systems Command F												
2.1) S7041 - NFSA HW/SW (3)		2020	VARIOUS / VARIOUS	C / FFP	NAVAIR	May 2020	Sep 2020	1	2,468K	Y		Jan 2020
2.1) S7041 - NFSA HW/SW (3)		2021	VARIOUS / VARIOUS	C / FFP	NAVAIR	May 2021	Sep 2021	1	2,522K	Y		Jan 2021
2.1) S7041 - NFSA HW/SW (3)		2022	VARIOUS / VARIOUS	C / CPFF	NAVAIR	May 2022	Sep 2022	1	2,483K	Y		Jan 2022
3) Joint Technical Data Integration (JTDI)												
3.1) S7042 - JTDI HW/SW (4)		2020	Wyle / Huntsville, AL	C / CPFF	DTIC	Jul 2020	Oct 2020	1	2,172K	Y		May 2020
3.1) S7042 - JTDI HW/SW (4)		2021	Wyle / Huntsville, AL	C / CPFF	DTIC	Jul 2021	Oct 2021	1	2,199K	Y		May 2021
3.1) S7042 - JTDI HW/SW (4)		2022	Wyle / Huntsville, AL	C / CPFF	DTIC	Jul 2022	Oct 2022	1	2,169K	Y		May 2022
6) Condition Based Maintenance Plus (CBM+)												
6.1) S7048 - CBM+ HW/SW (5)		2020	VARIOIUS / VARIOUS	Various	NAVAIR	Feb 2020	Apr 2020	1	242,664.00	Y		Nov 2019
6.1) S7048 - CBM+ HW/SW (5)		2021	VARIOIUS / VARIOUS	Various	NAVAIR	Feb 2021	Apr 2021	1	244,000.00	Y		Nov 2020
6.1) S7048 - CBM+ HW/SW (5)		2022	VARIOIUS / VARIOUS	Various	NAVAIR	Feb 2022	Apr 2022	1	241,000.00	Y		Nov 2021

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Item Number / Title [DODIC]:** 1 / Aviation Life Support
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	129.753	33.344	22.205	43.633	0.000	43.633
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	129.753	33.344	22.205	43.633	0.000	43.633
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**129.753**	**33.344**	**22.205**	**43.633**	**0.000**	**43.633**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - Survival Electronics Cost																		
Recurring Cost																		
1.1.1) CSEL - SY060	8,244.90	49	0.404	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) Survival Communication Devices - SY063(†) (8)	-	-	0.000	-	-	0.000	-	-	0.000	3,225.14	2,750	8.869	-	-	0.000	3,225.14	2,750	8.869
Subtotal: Recurring Cost	-	-	*0.404*	-	-	*0.000*	-	-	*0.000*	-	-	*8.869*	-	-	*0.000*	-	-	*8.869*
Subtotal: Hardware - Survival Electronics Cost	**-**	**-**	***0.404***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***8.869***	**-**	**-**	***0.000***	**-**	**-**	***8.869***
Hardware - Helmets, Hearing and Display Cost																		
Non Recurring Cost																		
2.1.1) JHMCS Night Vision NRE- SY215	-	-	1.050	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Non Recurring Cost	-	-	*1.050*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*	-	-	*0.000*
Subtotal: Hardware - Helmets, Hearing and Display Cost	**-**	**-**	***1.050***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***	**-**	**-**	***0.000***
Hardware - Helmets, Hearing and Display Cost																		
Recurring Cost																		
3.1.1) Hearing Protection and Speech Intelligibility - SY218 (9)	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.500	-	-	0.000	-	-	0.500
3.1.2) LEP- SY080(†)	-	-	0.000	-	-	0.000	4,968.75	160	0.795	4,714.75	610	2.876	-	-	0.000	4,714.75	610	2.876

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4268 / Aviation Support Equipment	Item Number / Title [DODIC]: 1 / Aviation Life Support
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
3.1.3) JHMCS Night Vision - SY215(†)	160,351.63	492	78.893	218,916.67	60	13.135	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
3.1.4) JHMCS Night Vision Pec Spt Equip - SY215(†)	31,155.56	90	2.804	36,200.00	30	1.086	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
3.1.5) FDC - SY505(†) (10)	-	-	0.000	7,322.05	975	7.139	6,868.55	1,064	7.308	6,772.50	1,421	9.624	-	-	0.000	6,772.50	1,421	9.624
3.1.6) Aviation Maintainer Head & Hearing Protection - SY510(†) (11)	-	-	0.000	-	-	0.000	1,500.00	2,400	3.600	1,500.00	2,400	3.600	-	-	0.000	1,500.00	2,400	3.600
3.1.7) EKB - SY450	1,127.48	2,675	3.016	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*84.713*	-	-	*21.360*	-	-	*11.703*	-	-	*16.600*	-	-	*0.000*	-	-	*16.600*
Subtotal: Hardware - Helmets, Hearing and Display Cost	**-**	**-**	***84.713***	**-**	**-**	***21.360***	**-**	**-**	***11.703***	**-**	**-**	***16.600***	**-**	**-**	***0.000***	**-**	**-**	***16.600***
Hardware - Life Support Systems Cost																		
Recurring Cost																		
4.1.1) Physiological Monitoring - SY127(†) (12)	-	-	0.000	-	-	0.000	-	-	0.000	3,600.00	1,000	3.600	-	-	0.000	3,600.00	1,000	3.600
4.1.2) Recompression Chamber - SY128(†) (13)	-	-	0.000	-	-	0.000	-	-	0.000	1,800K	1	1.800	-	-	0.000	1,800K	1	1.800
4.1.3) ASIP - SY126(†) (14)	-	-	0.000	1,036K	1	1.036	202,000.00	1	0.202	4,670K	1	4.670	-	-	0.000	4,670K	1	4.670
4.1.4) ASIP - CSEL SW - SY131	5,034.97	143	0.720	5,498.15	271	1.490	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
4.1.5) ASIP - Bladder Relief - SY132(†) (15)	-	-	0.000	-	-	0.000	9,719.93	300	2.916	9,800.00	282	2.764	-	-	0.000	9,800.00	282	2.764
4.1.6) ASIP - EEOS Carts - SY133	19,560.98	41	0.802	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
4.1.7) ASIP - LPU - SY134(†)	-	-	0.000	921.94	2,575	2.374	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
4.1.8) ASIP - JCAST - SY135	69,125.00	8	0.553	81,520.00	25	2.038	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
4.1.9) ASIP - TACAIR Pivot Shelf Mod Kits - SY137(†) (16)	-	-	0.000	-	-	0.000	776.00	1,850	1.435	-	-	0.000	-	-	0.000	-	-	0.000

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4268 / Aviation Support Equipment	Item Number / Title [DODIC]: 1 / Aviation Life Support
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
4.1.10) ASIP - UWARS and NACES Risers - SY138(†) (17)	-	-	0.000	-	-	0.000	9,200.00	120	1.104	-	-	0.000	-	-	0.000	-	-	0.000
Subtotal: Recurring Cost	-	-	*2.075*	-	-	*6.938*	-	-	*5.657*	-	-	*12.834*	-	-	*0.000*	-	-	*12.834*
Subtotal: Hardware - Life Support Systems Cost	**-**	**-**	***2.075***	**-**	**-**	***6.938***	**-**	**-**	***5.657***	**-**	**-**	***12.834***	**-**	**-**	***0.000***	**-**	**-**	***12.834***
Support - Production Support Cost																		
5.1) Survival Electronics - SY830	-	-	0.258	-	-	0.000	-	-	0.000	-	-	0.750	-	-	0.000	-	-	0.750
5.2) Helmets, Hearing and Displays - SY830	-	-	39.382	-	-	4.636	-	-	4.319	-	-	4.113	-	-	0.000	-	-	4.113
5.3) Life Support Systems - SY830 (18)	-	-	1.871	-	-	0.410	-	-	0.526	-	-	0.467	-	-	0.000	-	-	0.467
Subtotal: Support - Production Support Cost	**-**	**-**	***41.511***	**-**	**-**	***5.046***	**-**	**-**	***4.845***	**-**	**-**	***5.330***	**-**	**-**	***0.000***	**-**	**-**	***5.330***
Gross/Weapon System Cost	**-**	**-**	**129.753**	**-**	**-**	**33.344**	**-**	**-**	**22.205**	**-**	**-**	**43.633**	**-**	**-**	**0.000**	**-**	**-**	**43.633**

(†) indicates the presence of a P-5a

Footnotes:

(8) By augmenting aircraft ejection seat locator beacons with auto-activate features in the Combat and Non-Combat radios, this funding also supports the FY21 NDAA requirement to mitigate "aircraft ejection seat locator beacons that are inoperable in water or wet conditions." FY21 funding and quantity adjustment due Congressional mark for 'Survival Communications Device unjustified request'. Procurement of units initiated in FY20 with ASIP funding prior to establishment of this funding line, which reduced FYDP quantities. Unit cost adjustments due to finalized IDIQ contract. Non-Combat Survival Radios (NCSR) will continue to be procured in FY22 to replace legacy NCSRs which are no longer being produced and subject to limited supply support, maintenance and repair actions due to obsolescence issues and increased sustainment costs.

(9) Naval Aviation life support requirement that will protect aircrew from temporary hearing damage and permanent hearing loss. Final contract strategy and quantities pending approval from Milestone Decision Authority (MDA).

(10) SY505 FDC: Quantity and total cost increased in FY 2022 due to the urgency of FDC capability and contractor ability to produce number of units required to conclude procurement.

(11) SY510: Specific BISOG call out for Cranials (Maintainers) and other Personal Protective Equipment. Procurement strategy will be through the Defense Logistics Agency, pending user evaluations and requirements refinement.

(12) The physiological monitoring program is an established Naval Aviation life support requirement. Multiple Other Transactional Authorities (OTA) prototypes are in test through FY21 to inform a sensor capability selection(s) for a best of breed or blended solution. The increase in unit price across the FYDP reflects the integration of multiple sensors and increased capability iteratively through the FYDP from the expected baseline physiological monitor and represents the initial estimate prior to test completion, data analysis, and sensor selection(s).

(13) Naval Aviation life support requirement for procurement of 4 recompression chambers in FY22 in support of physiological episodes mitigation aboard deploying CVNs to treat PE symptomatic aircrew.

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Item Number / Title [DODIC]:** 1 / Aviation Life Support
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

(14) SY126 ASIP: Naval Aviation life support requirement approved for FY22 to invest more resources to address Fleet Aircrew and Aviation Maintainer safety and survivability issues. FY23 through FY26 quantities and average unit cost vary each year due to a mix of ASIP items. Quantity of 1 is a place holder until requirements are established from ENARG and System Safety Working Group. ASIP helps ensure that deficiencies that threaten Aircrew safety and performance, such as Physiological Episodes and chronic back and neck injury mitigation are addressed in a timely manner.

(15) ASIP - Bladder Relief SY132 is a Naval Aviation life support requirement approved for procurement beginning in FY21 due to operational requirements to support aircrew safety.

(16) ASIP - TACAIR Pivot Shelf Mod Kits SY137 is a Naval Aviation life support requirement approved for procurement beginning in FY21 due to operational requirements to support aircrew safety.

(17) ASIP - UWARS and NACES Risers SY138 is a Naval Aviation life support requirement approved for procurement beginning in FY21 due to operational requirements to support aircrew safety.

(18) SY830 - Life Support Systems: This line is the labor that supports ASIP products.

Exhibit P-5a, Procurement History and Planning: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4268 / Aviation Support Equipment	Item Number / Title [DODIC]: 1 / Aviation Life Support

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.2) Survival Communication Devices - SY063(†)		2022	Elbit / Talladega, Alabama	C / IDIQ	** NO PCO **	Oct 2021	Apr 2022	2,750	3,225.14	N	Sep 2021	
3.1.2) LEP- SY080		2021	Gentex / Simpson, Pennsylvania	C / FFP	NAVAIR	Dec 2021	Apr 2022	160	4,968.75	Y		Dec 2018
3.1.2) LEP- SY080		2022	Gentex / Simpson, Pennsylvania	C / FFP	NAVAIR	Mar 2022	Jul 2022	610	4,714.75	N	Dec 2021	
3.1.3) JHMCS Night Vision - SY215		2020	Rockwell Collins - ESA Vision Systems / Dallas Ft. Worth, Texas	C / TBD	NAVAIR	Mar 2020	Mar 2021	60	218,916.67	N		Oct 2018
3.1.4) JHMCS Night Vision Pec Spt Equip - SY215		2020	Rockwell Collins - ESA Vision Systems / Dallas Ft. Worth, Texas	SS / FFP	NAVAIR	Oct 2019	Feb 2020	30	36,200.00	Y		
3.1.5) FDC - SY505(†)		2020	Creare / Hanover, NH	SS / CPFF	Lakehurst, NJ	Sep 2020	Feb 2021	975	7,322.05	Y		
3.1.5) FDC - SY505(†)		2021	Creare / Hanover, NH	SS / CPFF	Lakehurst, NJ	May 2021	Sep 2021	1,064	6,868.55	Y		
3.1.5) FDC - SY505(†)		2022	Creare / Hanover, NH	SS / CPFF	Lakehurst, NJ	Oct 2021	Feb 2022	1,421	6,772.50	N		
3.1.6) Aviation Maintainer Head & Hearing Protection - SY510		2021	DLA / Philadelphia, PA	C / FFP	** NO PCO **	Jul 2021	Jul 2021	2,400	1,500.00	Y		
3.1.6) Aviation Maintainer Head & Hearing Protection - SY510		2022	DLA / Philadelphia, PA	C / FFP	** NO PCO **	Oct 2021	Oct 2021	2,400	1,500.00	N	Jul 2021	
4.1.1) Physiological Monitoring - SY127		2022 (19)	TBD / TBD	C / TBD	TBD	Mar 2022	Jun 2022	1,000	3,600.00	N	Oct 2020	
4.1.2) Recompression Chamber - SY128		2022 (20)	TBD / TBD	C / TBD	** NO PCO **	Apr 2022	Apr 2022	1	1,800K	N		
4.1.3) ASIP - SY126(†)		2020 (21)	VARIOUS / VARIOUS	Various	VARIOUS	Dec 2019	Feb 2020	1	1,036K	Y		
4.1.3) ASIP - SY126(†)		2021	VARIOUS / VARIOUS	Various	VARIOUS	Feb 2021	Apr 2021	1	202,000.00	Y		
4.1.3) ASIP - SY126(†)		2022	VARIOUS / VARIOUS	Various	VARIOUS	Feb 2022	Apr 2022	1	4,670K	N		
4.1.5) ASIP - Bladder Relief - SY132		2021	DLA / Philadelphia, PA	C / FFP	VARIOUS	Aug 2021	Sep 2021	300	9,719.93	Y		
4.1.5) ASIP - Bladder Relief - SY132		2022	DLA / Philadelphia, PA	C / FFP	VARIOIUS	Nov 2021	Nov 2021	282	9,800.00	N	Aug 2021	
4.1.7) ASIP - LPU - SY134		2020	VARIOUS / VARIOUS	C / FFP	VARIOUS	Feb 2020	Feb 2020	2,575	921.94	Y		
4.1.9) ASIP - TACAIR Pivot Shelf Mod Kits - SY137		2021	DLA / Philadelphia, PA	C / TBD	** NO PCO **	Oct 2021	Jul 2022	1,850	776.00	Y		
4.1.10) ASIP - UWARS and NACES Risers - SY138		2021 (22)	DLA / Philadelphia, PA	C / TBD	** NO PCO **	Aug 2021	Sep 2021	120	9,200.00	Y		

(†) indicates the presence of a P-21

Footnotes:

Exhibit P-5a, Procurement History and Planning: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4268 / Aviation Support Equipment	Item Number / Title [DODIC]: 1 / Aviation Life Support

(19) Final contract strategy pending approval from Milestone Decision Authority (MDA)

(20) Final contract strategy pending approval from Milestone Decision Authority (MDA)

(21) Contract vehicles and Vendors vary depending on mix of ASIP items being procured.

(22) Final contract strategy pending approval from Milestone Decision Authority (MDA)

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Item Number / Title [DODIC]:** 1 / Aviation Life Support

Cost Elements (Units in Each)							Fiscal Year 2020												Fiscal Year 2021												BALANCE
							Calendar Year 2020												Calendar Year 2021													
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) Survival Communication Devices - SY063 (8)																															
	1	2022	NAVY	2,750	0	2,750																									2,750
3.1.5) FDC - SY505 (10)																															
	2	2020	NAVY	975	0	975												A -	-	-	-	-	78	81	82	82	82	81	82	81	326
	2	2021	NAVY	1,064	0	1,064																				A -	-	-	-	88	976
	2	2022	NAVY	1,421	0	1,421																									1,421
4.1.3) ASIP - SY126 (14)																															
	3	2020	NAVY	1	0	1			A -	-	1																				0
	3	2021	NAVY	1	0	1																	A -	-	1						0
	3	2022	NAVY	1	0	1																									1
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Item Number / Title [DODIC]:** 1 / Aviation Life Support

Cost Elements (Units in Each)							Fiscal Year 2022												Fiscal Year 2023											BALANCE
							Calendar Year 2022												Calendar Year 2023											
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.2) Survival Communication Devices - SY063 (8)																														
	1	2022	NAVY	2,750	0	2,750	A -	-	-	-	-	-	229	229	229	230	229	229	230	229	229	229	229	229							0
3.1.5) FDC - SY505 (10)																														
	2	2020	NAVY	975	649	326	82	81	82	81																					0
	2	2021	NAVY	1,064	88	976	89	89	89	88	89	89	89	88	89	89	88														0
	2	2022	NAVY	1,421	0	1,421	A -	-	-	-	118	118	118	118	119	119	118	119	118	119	118	119									0
4.1.3) ASIP - SY126 (14)																														
	3	2020	NAVY	1	1	0																									0
	3	2021	NAVY	1	1	0																									0
	3	2022	NAVY	1	0	1					A -	-	1																		0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Item Number / Title [DODIC]:** 1 / Aviation Life Support

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2022	1-8-5 For 2022	MAX For 2022	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	Elbit - Talladega, Alabama	3,000	3,900	4,800	0	0	6	6	0	0	6	6
2	Creare - Hanover, NH	50	900	2,000	11	8	5	13	0	1	4	5
3	VARIOUS - VARIOUS			TBD	0	0	0	0	0	5	2	7

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Item Number / Title [DODIC]:** 2 / Aviation Maintenance Advancement Solutions (AMAS)
ID Code (A=Service Ready, B=Not Service Ready) :		**MDAP/MAIS Code:**

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	49.846	7.962	13.319	15.539	0.000	15.539
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	49.846	7.962	13.319	15.539	0.000	15.539
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**49.846**	**7.962**	**13.319**	**15.539**	**0.000**	**15.539**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - Hardware Cost																		
Recurring Cost																		
1.1.1) S6001 Portable Electronic Maintenance Aids (PEMAs)	3,562.60	10,846	38.640	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.2) S6002 CH/ MH-53 PEMAs	3,416.20	531	1.814	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
1.1.3) S6003 Aviation Maintenance Advancement Solution(†) (23)	-	-	0.000	3,644.11	1,387	5.054	3,716.48	2,784	10.347	3,700.00	3,334	12.336	-	-	0.000	3,700.00	3,334	12.336
Subtotal: Recurring Cost	-	-	*40.454*	-	-	*5.054*	-	-	*10.347*	-	-	*12.336*	-	-	*0.000*	-	-	*12.336*
Subtotal: Hardware - Hardware Cost	**-**	**-**	***40.454***	**-**	**-**	***5.054***	**-**	**-**	***10.347***	**-**	**-**	***12.336***	**-**	**-**	***0.000***	**-**	**-**	***12.336***
Support - Production Cost																		
2.1) S6820 Portable Electronic Maintenance Aids (PEMAs) Support	-	-	9.257	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
2.2) S6830 CH/MH-53 PEMAs Support	-	-	0.135	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000	-	-	0.000
2.3) S6840 Aviation Maintenance Advancement Solutions (24)	-	-	0.000	-	-	2.908	-	-	2.972	-	-	3.203	-	-	0.000	-	-	3.203

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Item Number / Title [DODIC]:** 2 / Aviation Maintenance Advancement Solutions (AMAS)
ID Code (A=Service Ready, B=Not Service Ready) :		**MDAP/MAIS Code:**

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Support - Production Cost	-	-	*9.392*	-	-	*2.908*	-	-	*2.972*	-	-	*3.203*	-	-	*0.000*	-	-	*3.203*
Gross/Weapon System Cost	-	-	49.846	-	-	7.962	-	-	13.319	-	-	15.539	-	-	0.000	-	-	15.539

Remarks:
Due to a change in the acquisition strategy the Portable Maintenance Aids (PEMA) program is now known as the Aviation Maintenance Advancement Solutions (AMAS). Designation for the Aviation Maintenance Advancement Solutions (AMAS) Program was authorized by Program Executive Office, Aviation Common Systems and Commercial Services (PEO(CS)) on Jul 24, 2020.

[Hardware] Quantities of PEMAs are derived from actual current inventory, as reported by the fleet in the mandated asset tracking system Support Equipment Management System (SEMS). This program is a replenishment of these fielded systems on a one for one basis as required.

(†) indicates the presence of a P-5a

Footnotes:
(23) Aviation Maintenance Advancement Solutions (AMAS) program integrates the Portable Electronic Maintenance Aid (PEMA) with the Standard PEMA Cyber Solution (SPECS) programs supporting maintenance activities within the Navy's inventory; this is only a program name change. Increase in quantity due to the PEMA program scope increase, to include the Fleet Readiness Centers: Aircraft Intermediate Maintenance Departments (AIMD), Marine Aviation Logistics Squadrons (MALS), and Depots.
(24) Funding increase from FY2021- FY2022 based upon NAVAIR Inspector General (NAVIG) recommendation to increase F/A-18 E/F/G repair capacity, increasing units from 2 to 5 per aircraft across the fleet.

Exhibit P-5a, Procurement History and Planning: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Item Number / Title [DODIC]:** 2 / Aviation Maintenance Advancement Solutions (AMAS)

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.3) S6003 Aviation Maintenance Advancement Solution(†)		2020	Panasonic of North America / Secaucus, NJ	C / IDDQ	NAWCAD LKE	Dec 2019	Feb 2020	1,387	3,644.11	Y		Dec 2019
1.1.3) S6003 Aviation Maintenance Advancement Solution(†)		2021	Panasonic of North America / Secaucus, NJ	C / IDIQ	NAWCAD LKE	Mar 2021	May 2021	2,784	3,716.48	Y		Dec 2020
1.1.3) S6003 Aviation Maintenance Advancement Solution(†)		2022 (25)	Panasonic of North America / Secaucus, NJ	C / IDDQ	NAWCAD LKE	Dec 2021	May 2022	3,334	3,700.00	Y		Dec 2021

(†) indicates the presence of a P-21

Footnotes:

(25) Aviation Maintenance Advancement Solutions (AMAS) program integrates the Portable Electronic Maintenance Aid (PEMA) with the Standard PEMA Cyber Solution (SPECS) programs supporting maintenance activities within the Navy's inventory; this is only a program name change.

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Item Number / Title [DODIC]:** 2 / Aviation Maintenance Advancement Solutions (AMAS)

Cost Elements (Units in Each)							Fiscal Year 2020												Fiscal Year 2021											BALANCE
										Calendar Year 2020														Calendar Year 2021								
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2019	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1.1.3) S6003 Aviation Maintenance Advancement Solution [23]																														
	1	2020	NAVY	1,387	0	1,387			A -	-	116	116	116	116	116	116	116	116	116	116	114	113								0
	1	2021	NAVY	2,784	0	2,784																		A -	-	232	232	232	232	232	1,624
	1	2022	NAVY	3,334	0	3,334																									3,334
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Item Number / Title [DODIC]:** 2 / Aviation Maintenance Advancement Solutions (AMAS)

Cost Elements (Units in Each)							Fiscal Year 2022												Fiscal Year 2023												
							Calendar Year 2022												Calendar Year 2023													
OCO	MFR #	FY	SERVICE	PROC QTY	ACCEPT PRIOR TO 1 OCT 2021	BAL DUE AS OF 1 OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	BALANCE
1.1.3) S6003 Aviation Maintenance Advancement Solution [23]																															
	1	2020	NAVY	1,387	1,387	0																									0
	1	2021	NAVY	2,784	1,160	1,624	232	232	232	232	232	232	232																		0
	1	2022	NAVY	3,334	0	3,334			A -	-	-	-	-	350	350	350	350	350	350	350	350	350	184									0
							OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		

Exhibit P-21, Production Schedule: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Item Number / Title [DODIC]:** 2 / Aviation Maintenance Advancement Solutions (AMAS)

MFR Ref #	Manufacturer Name - Location	Production Rates (Each / Year)			Procurement Leadtime (Months)							
					Initial				Reorder			
		MSR For 2022	1-8-5 For 2022	MAX For 2022	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1	ALT Prior to Oct 1	ALT After Oct 1	Manufacturing PLT	Total After Oct 1
1	Panasonic of North America - Secaucus, NJ	500	2,000	5,000	0	0	0	0	0	3	2	5

"A" in the Delivery Schedule indicates the Contract Award Date.
Note: Due to space limitations, quantities in the Exhibit P-21 delivery calendar are truncated and rounded based on the maximum quantity in the calendar as follows. If the maximum quantity is less than or equal to than 9,999, all quantities are shown as each. If the maximum quantity is between 10,000 and 999,999 all quantities are shown in thousands. If the maximum quantity is between 1,000,000 and 999,999,999 all quantities are shown in millions (rounded to the nearest thousand).If the maximum quantity is equal or greater than 1,000,000,000 all quantities are shown in billions (rounded to the nearest million).

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Modification Number / Title:** 1 / ALIS SHIP INSTALLATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	18.660	3.780	3.764	3.737	0.000	3.737
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	18.660	3.780	3.764	3.737	0.000	3.737
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**18.660**	**3.780**	**3.764**	**3.737**	**0.000**	**3.737**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Description:

[ALIS - Program Support] Autonomic Logistics Information System (ALIS) Ship Integration - CVN, LHD, LHA: ALIS controls all aspects of F-35 mission planning, maintenance, logistics, and supply functions. Funding for ALIS Ship Integration efforts (Programmatic Support, Engineering Support Services, Material, and Installation efforts) will enable shipboard (CVN, LHD, LHA) modification, classified/unclassified network integration, the installation of ALIS-related shipboard equipment, ALIS security accreditation, and verification of ALIS operation and functionality to include the integration of ALIS with shipboard Command, Control, Communications and Computers & Intelligence (C4I) Networks and the Prognostic Health Management (PHM) downlink. At the completion of each installation, the respective ship's ALIS will enable the F-35 system to provide, at the appropriate security levels via Navy Local Area Networks (LANs)/Wide Area Networks (WANs), the ability to transfer time-sensitive data for logistics support, mission planning, mission execution, and mission debriefing.

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Modification Number / Title:** 1 / ALIS SHIP INSTALLATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	
Models of Systems Affected: CVN, LHD, & LHA	**Modification Type:** Add Capability	**Related RDT&E PEs:**

Financial Plan	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Procurement						
Modification Item 1 of 1: ALIS SHIP INSTALLATION						
B Kits						
Recurring						
1.1.1) Installation Material - NonOrganic [26]	10 / 0.400	2 / 0.080	2 / 0.080	2 / 0.080	- / -	2 / 0.080
Subtotal: Recurring	*- / 0.400*	*- / 0.080*	*- / 0.080*	*- / 0.080*	*- / -*	*- / 0.080*
Subtotal: ALIS SHIP INSTALLATION	*10 / 0.400*	*2 / 0.080*	*2 / 0.080*	*2 / 0.080*	*- / -*	*2 / 0.080*
Subtotal: Procurement, All Modification Items	*- / 0.400*	*- / 0.080*	*- / 0.080*	*- / 0.080*	*- / -*	*- / 0.080*
Support *(All Modification Items)*						
2.1) ALIS - Program Support [27]	- / 4.005	- / 0.511	- / 0.726	- / 0.685	- / 0.000	- / 0.685
2.2) ALIS - Production Engineering Support [28]	- / 4.156	- / 0.415	- / 0.660	- / 0.670	- / 0.000	- / 0.670
Subtotal: Support	*- / 8.161*	*- / 0.926*	*- / 1.386*	*- / 1.355*	*- / -*	*- / 1.355*
Installation						
Modification Item 1 of 1: ALIS SHIP INSTALLATION	- / 10.099	- / 2.774	- / 2.298	- / 2.302	- / 0.000	- / 2.302
Subtotal: Installation	*- / 10.099*	*- / 2.774*	*- / 2.298*	*- / 2.302*	*- / -*	*- / 2.302*
Total						
Total Cost (Procurement + Support + Installation)	**18.660**	**3.780**	**3.764**	**3.737**	**0.000**	**3.737**

Exhibit P-3a, Individual Modification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4268 / Aviation Support Equipment	**Modification Number / Title:** 1 / ALIS SHIP INSTALLATION
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Modification Item 1 of 1: ALIS SHIP INSTALLATION

Manufacturer Information

Manufacturer Name: NAWC AD 4.5.10	Manufacturer Location: St. Inigoes, NAS Patuxent River MD
Administrative Leadtime *(in Months)*: 3	Production Leadtime *(in Months)*: 4

Dates	FY 2020	FY 2021	FY 2022
Contract Dates	Dec 2019	Dec 2020	Dec 2021
Delivery Dates	Apr 2020	Apr 2021	Apr 2022

Installation Information

Method of Implementation: [none specified]:: Installation Name: Installation Material

Installation Cost	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*	Qty *(Each)* / Total Cost *($ M)*
Prior Years	10 / 10.099	- / -	- / -	- / -	- / -	- / -
FY 2020	- / -	2 / 2.774	- / -	- / -	- / -	- / -
FY 2021	- / -	- / -	2 / 2.298	- / -	- / -	- / -
FY 2022	- / -	- / -	- / -	2 / 2.302	0 / 0.000	2 / 2.302
Total	10 / 10.099	2 / 2.774	2 / 2.298	2 / 2.302	0 / 0.000	2 / 2.302

Installation Schedule

	PYS	FY 2020				FY 2021				FY 2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
In	10	-	-	2	-	-	-	2	-	-	-	2	-
Out	10	-	-	-	2	-	-	-	2	-	-	-	2

Footnotes:

(26) FY 2022 Installation Material requested funding supports Design Support Activities (DSA) to include material purchases for the installation of two (2) ALIS in FY 2022.

(27) FY 2022 Program Support requested funding supports Design Support Activities (DSA) to include Alteration Installation Team support for the installation of two (2) ALIS in FY 2023.

(28) FY 2022 Production Engineering Support requested funding supports Design Support Activities (DSA) to include Ship Installation Drawings and Ship check in support of installation of two (2) ALIS in FY 2022.

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Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn

ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A

Line Item MDAP/MAIS Code: N/A

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	To Complete	Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	18.019	17.568	40.070	86.584	0.000	86.584	-	-	-	-	-	-
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	18.019	17.568	40.070	86.584	0.000	86.584	-	-	-	-	-	-
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**18.019**	**17.568**	**40.070**	**86.584**	**0.000**	**86.584**	**-**	**-**	**-**	**-**	**-**	**-**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)												
Initial Spares *($ in Millions)*	-	-	-	3.705	-	3.705	-	-	-	-	-	-
Flyaway Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-	-	-	-	-	-	-

Description:

This Budget Line Item funds The Unmanned Carrier Aviation (UCA) Mission Control System (UMCS) program. This program builds, integrates, installs, and sustains control systems required to operate the MQ-25 and other ship
installation associated with MQ-25.

The UMCS program is the system-of-systems required for MQ-25 vehicle and payload control both shipboard and shore based. The UMCS consists of all ground and ship based hardware, software, and networks associated with the planning and execution of flight operations and tactical missions; including the control stations, displays, computers, and servers as well as line of sight (LOS) communications and beyond line of sight (BLOS) satellite communications (SATCOM). Additionally, the UMCS is the human interface for Air Vehicle Operators (AVOs) with the MQ-25 Air Vehicle AV and external Command, Control, Communication, Computers, and Intelligence (C4I) systems. The UMCS has pivoted from a government furnished Ground Control Station to an industry developed version. The new GCS hardware will streamline software development, readily support multiple classification levels, and position the MQ-25 for interoperability with other DoD systems. UMCS develops control station software and integrates that software with MQ-25 unique software. UMCS modifies carrier spaces in order to install the control station, auxiliary communications systems, and VidMS. The UMCS integrates with existing NAVWAR C4I systems to provide network paths for AV and mission payload data using a variety of wideband and narrowband communication paths.

UMCS builds the following hardware: MQ-25 control station, Video Management System (VidMS), ARC-210 Radio Communication System (RCS), and Ashore Routing Communication System (ARCS). The control station has three variants: fixed shore, CVN-based, and mobile. Fixed shore variants will support either MQ-25 testing (RDT&E funded) or operations (OPN funded). CVN-based variants will be permanent installations. Mobile variants will support testing (RDT&E funded); one system will be Embarkable in support of at-sea test events. The control station consists of the following components: air vehicle operator (AVO) workstations, server racks, network interface racks, integrated communication system (ICS), Data Transfer System (DTS), and software. The ship variant leverages shore system components but will have slight manufacturing differences to account for the CVN environment. The VidMS provides MQ-25 AVOs with situational awareness video and displays of the carrier environment. The ARC-210 and Mobile User Objective System (MUOS) radio systems provide narrowband Command and Control (C2) communications between the GCS and the MQ-25 AV. The UCA Transport system serves as encryption device between the GCS and the CVN networks. An ICS 1/2 rack integrates the GCS with existing carrier communication systems. The ARCS provides an interface between the shore sites and the Command, Control, Communication, Computers, and Intelligence (C4I) network to enable wide-band LOS and BLOS communications with the MQ-25. The UMCS program is leveraging NAVWAR baseline systems on board the CVNs and at the MQ-25 shore sites.

UMCS leads modification, engineering, and integration activities, facilitating seamless voice, data, and command and control exchanges with the MQ-25 air system, local networks, voice networks, C2 networks, tactical networks, intelligence systems, and launch and recovery systems. To accomplish this, the UMCS Program works closely with existing NAVWAR Programs of Record (PoRs).

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A	**Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A		

UMCS performs CVN infrastructure modifications and installs the hardware described above in support of MQ-25 operations aboard NIMITZ and FORD Class carriers, as well as 3 fixed operational shore locations. The CONUS shore sites each have 2 MD-5 control stations while the OCONUS site has 1 MD-5 control station. All installation and integration activities aboard NIMITZ and FORD class carriers follow the Naval Sea Systems Command (NAVSEA) Navy Modernization Process (NMP). These installation and integration activities are conducted serially across multiple CVN Availability periods (at least two depending upon the length of the planned shipyard maintenance period); installation planning begins around 3 years prior to the first availability period. The NMP identifies specific delivery schedules for documentation, drawings, and hardware. The NMP can be divided into four phases. Phase 1 begins with the Ship Change Document (SCD) process, which includes planning, technical data preparation, and top-level drawing generation; this occurs three years prior to an availability period. Phase 2 begins with a hull specific Ship Check, development of detailed hull specific Ship Installation Drawings (SIDs), and procurement of control station and ancillary hardware two years prior to an availability period. Phase 3 starts one-year prior to the availability and includes approval of the final design, the SIDs, the installation schedule and cybersecurity/logistics documentation. Finally, Phase 4 is the installation of all systems during the availability period. Due to the size and complexity of the UMCS modifications, a minimum of two six-month scheduled maintenance periods are required. With this approach, and required to follow a pre-planned availability, it is possible that UMCS can be simultaneously installing hardware and planning for future installation work on the same CVN during any given fiscal year. Additionally, there can be a significant amount of work occurring across multiple CVNs in any FY. Following, this pre-planned schedule creates several challenges for the UMCS: installations may not occur every year (funding fluctuates from FY to FY); funding reductions could perturb the schedule by as much as 3 years (next CVN planned availability period), and the schedule changes at least twice per year. Operational shore site installations will follow a methodology similar to the SCD process.

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy	Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	**P-1 Line Item Number / Title:** 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn
ID Code (A=Service Ready, B=Not Service Ready): A	**Program Elements for Code B Items:** N/A — **Other Related Program Elements:** N/A
Line Item MDAP/MAIS Code: N/A	

Exhibits Schedule					Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Exhibit Type	Title*	Subexhibits	ID CD	MDAP/ MAIS Code	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*	Quantity / Total Cost *(Each) / ($ M)*
P-5	1 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	P-5a			- / 18.019	- / 17.568	- / 40.070	- / 86.584	- / 0.000	- / 86.584
P-40	**Total Gross/Weapon System Cost**				**- / 18.019**	**- / 17.568**	**- / 40.070**	**- / 86.584**	**- / 0.000**	**- / 86.584**

*Title represents 1) the Number / Title for Items; 2) the Number / Title [DODIC] for Ammunition; and/or 3) the Number / Title (Modification Type) for Modifications.

Note: Totals in this Exhibit P-40 set may not be exact or sum exactly due to rounding.

Justification:

In FY 2022, UMCS will fund the following hardware procurements:
- 1 Unmanned Carrier Aviation (UCA) Transport System (UTS) for a CVN installation (CVN A)
- 1 Video Management System (VidMS) for a CVN installation (CVN D)
- 2 Air Traffic Control (ATC) Situational Awareness systems for CVN installations (CVNs B and D)
- 2 Mobile User Objective System (MUOS) Digital Modular Radio (DMR) Communication System - Ship; DMR has a lead-time of 24 - 30 months. Leverage NAVWAR installations (CVNs B and I)
- 1 MUOS DMR Communication System - Shore (CONUS East)

In FY 2022 UMCS will fund the following support tasking:
- Complete Ship Installation Drawings (SIDs), modify control station and ancillary system spaces, and install hardware. This is the first phase of the installation; work will complete in FY25 (funded in FY24) in support of the first MQ-25 deployment CVN (CVN C)
- Complete SIDs, modify the control station space (significant rework regarding foundation, power, and cooling) and ancillary system spaces, and install communication hardware (CVN B)
- Perform final Ship Check and being generating SIDs for the Maintenance spaces on board the first MQ-25 deployment CVN (CVN E)
- Perform Ship Checks on 3 CVNS, begin creating SIDs for 2 CVNs, and complete SIDs for a 3rd CVN (CVNs A, E, and D)
- Continue preparing guidance documentation (top-level drawings and installation instructions) for the FORD Class; CVN H is the primary focus because additional work is required new construction (SCN funded) in order to meet the MQ-25 deployment date for CVN H
- Continue to mature control station and ancillary system Technical Data Packages (TDPs) for ship and shore hardware configurations as the program migrates from Developmental to Operational Test
- Continue working with NAVFAC to define facility requirements to accommodate the new GCS for the CONUS West Operational Shore Site; MILCON funding was delayed by 1 year (task will now complete in FY23)
- Continue generating design documentation for the CONUS East and OCONUS Operational Shore Sites
- Modify fielded systems (e.g. ALRE, to integrate with the new GCS architecture (interdependent systems)
- Generate SIDs and install ALRE hardware and software on CVNs B and C to support integration within the MQ-25 control station spaces
- Perform additional analysis and generate shock-mounted, CVN-qualified set of production drawings for the new GCS
- Perform analyses and generate technical data for the new GCS in order to support IETM work and creation of Logistics Product Database elements
- Continue creating UMCS Integrated Electronic Technical Manuals (IETMs) and Maintenance Training documentation for CVN and Operational Shore Sites
- Begin Software Sustainment Activity (SSA) planning
- Continue C4I support to facility and control station system design focusing on integration with the operational communications and networks infrastructure at the 3 shore site locations (operational network connectivity)
- Continue modification, integration, and test with externally managed Command, Control, Communication, Computers, and Intelligence (C4I) systems to support MQ-25 operations
- Integration with shore site services (e-mail, chat, browsing, etc.) to support MQ-25
- Continue design and network integration with the Commercial Satellite Communications (SATCOM) system architecture to support MQ-25

Exhibit P-40, Budget Line Item Justification: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N: Other Procurement, Navy / BA 03: Aviation Support Equipment / BSA 3: Aircraft Support Equipment	P-1 Line Item Number / Title: 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	
ID Code (A=Service Ready, B=Not Service Ready): A	Program Elements for Code B Items: N/A	Other Related Program Elements: N/A
Line Item MDAP/MAIS Code: N/A		

- Begin non-recurring engineering associated with hardening GCS for CVN environment

FY 2022 request incorporates the requirement for an industry developed Ground Control station, eliminating hardware cost elements associated with the Common Display System (CDS), Common Processing System (CPS), Network Processing Group (NPG) w/ Network Attached Storage (NAS), Network Attached Storage (NAS), and Integrated Communication System (ICS) Shore.

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	**Item Number / Title [DODIC]:** 1 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Resource Summary	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Procurement Quantity *(Units in Each)*	-	-	-	-	-	-
Gross/Weapon System Cost *($ in Millions)*	18.019	17.568	40.070	86.584	0.000	86.584
Less PY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Net Procurement (P-1) *($ in Millions)*	18.019	17.568	40.070	86.584	0.000	86.584
Plus CY Advance Procurement *($ in Millions)*	-	-	-	-	-	-
Total Obligation Authority *($ in Millions)*	**18.019**	**17.568**	**40.070**	**86.584**	**0.000**	**86.584**
(The following Resource Summary rows are for informational purposes only. The corresponding budget requests are documented elsewhere.)						
Initial Spares *($ in Millions)*	-	-	-	3.705	-	3.705
Gross/Weapon System Unit Cost *($ in Dollars)*	-	-	-	-	-	-

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Hardware - Hardware Cost																		
Recurring Cost																		
1.1.2) Video Management System (VidMS)(†) (1)	-	-	-	854,200.00	1	0.854	-	-	-	989,583.00	1	0.990	-	-	-	989,583.00	1	0.990
1.1.3) ARC-210 Radio Communication System (RCS) Ship(†) (2)	-	-	-	2,373K	2	4.746	2,424K	1	2.424	-	-	-	-	-	-	-	-	-
1.1.4) MUOS Digital Modular Radio (DMR) Communication System Ship(†) (3)	-	-	-	403,760.00	2	0.808	411,814.00	4	1.647	420,050.00	2	0.840	-	-	-	420,050.00	2	0.840
1.1.7) Tech Refresh (4)	-	-	-	-	-	0.533	-	-	-	-	-	-	-	-	-	-	-	-
1.1.9) MUOS Digital Modular Radio (DMR) Communication System Shore(†) (5)	-	-	-	1,211K	1	1.211	-	-	-	1,403K	1	1.403	-	-	-	1,403K	1	1.403
1.1.10) Data Transfer System (DTS) - 1(†) (6)	-	-	-	-	-	-	278,519.00	1	0.279	-	-	-	-	-	-	-	-	-
1.1.11) UCA Transport System (UTS)(†) (7)	-	-	-	-	-	-	-	-	-	468,468.00	1	0.468	-	-	-	468,468.00	1	0.468

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	**Item Number / Title [DODIC]:** 1 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn
ID Code (A=Service Ready, B=Not Service Ready) :	**MDAP/MAIS Code:**	

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
1.1.12) Air Traffic Control (ATC) Picture (UYY-1)(†) (8)	-	-	-	-	-	-	-	-	-	83,232.00	2	0.166	-	-	-	83,232.00	2	0.166
Subtotal: Recurring Cost	-	-	-	-	-	*8.152*	-	-	*4.350*	-	-	*3.867*	-	-	-	-	-	*3.867*
Non Recurring Cost																		
1.2.1) Ship Change Document (SCD) (9)	-	-	2.300	-	-	0.128	-	-	4.223	-	-	19.103	-	-	-	-	-	19.103
1.2.2) Launch and Recovery (10)	-	-	-	-	-	-	-	-	-	-	-	1.269	-	-	-	-	-	1.269
1.2.3) C4I Integration (11)	-	-	-	-	-	2.799	-	-	6.500	-	-	7.348	-	-	-	-	-	7.348
1.2.4) Aircraft Carrier, Nuclear (CVN) Modifications, Support, and Upgrade (12)	-	-	-	-	-	1.431	-	-	3.663	-	-	4.752	-	-	-	-	-	4.752
1.2.5) Product Support and Assembly (13)	-	-	-	-	-	-	-	-	13.200	-	-	16.464	-	-	-	-	-	16.464
1.2.6) Shore Integration (14)	-	-	1.519	-	-	1.804	-	-	2.337	-	-	4.339	-	-	-	-	-	4.339
1.2.7) Ground Control Station (GCS) (15)	-	-	-	-	-	-	-	-	-	-	-	22.688	-	-	-	-	-	22.688
Subtotal: Non Recurring Cost	-	-	*3.819*	-	-	*6.162*	-	-	*29.923*	-	-	*75.963*	-	-	-	-	-	*75.963*
Subtotal: Hardware - Hardware Cost	**-**	**-**	***3.819***	**-**	**-**	***14.314***	**-**	**-**	***34.273***	**-**	**-**	***79.830***	**-**	**-**	**-**	**-**	**-**	***79.830***
Software - Software Cost																		
Recurring Cost																		
2.1.1) Software (16)	-	-	6.136	-	-	-	-	-	0.100	-	-	0.440	-	-	-	-	-	0.440
Subtotal: Recurring Cost	-	-	*6.136*	-	-	-	-	-	*0.100*	-	-	*0.440*	-	-	-	-	-	*0.440*
Subtotal: Software - Software Cost	**-**	**-**	***6.136***	**-**	**-**	**-**	**-**	**-**	***0.100***	**-**	**-**	***0.440***	**-**	**-**	**-**	**-**	**-**	***0.440***
Support - Support Cost																		
3.1) Production Engineering Support (PES) (17)	-	-	5.411	-	-	1.352	-	-	1.628	-	-	1.926	-	-	-	-	-	1.926
3.2) Integrated Logistics Support (ILS) (18)	-	-	2.653	-	-	1.902	-	-	4.069	-	-	4.388	-	-	-	-	-	4.388

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	**P-1 Line Item Number / Title:** 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	**Item Number / Title [DODIC]:** 1 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn
ID Code (A=Service Ready, B=Not Service Ready) :		**MDAP/MAIS Code:**

Note: Subtotals or Totals in this Exhibit P-5 may not be exact or sum exactly due to rounding.

Cost Elements	Prior Years			FY 2020			FY 2021			FY 2022 Base			FY 2022 OCO			FY 2022 Total		
	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)	Unit Cost ($)	Qty (Each)	Total Cost ($ M)
Subtotal: Support - Support Cost	-	-	*8.064*	-	-	*3.254*	-	-	*5.697*	-	-	*6.314*	-	-	-	-	-	*6.314*
Gross/Weapon System Cost	-	-	18.019	-	-	17.568	-	-	40.070	-	-	86.584	-	-	0.000	-	-	86.584

(†) indicates the presence of a P-5a

Footnotes:

(1) Cost Element 1.1.2 funds the procurement of the Video Management System, which displays data from several existing CVN systems to provide situational awareness to the Air Vehicle Operator (AVO).

(2) Cost Element 1.1.3 funds procurement of the ARC-210 Radio Communication System (RCS) ship, which provides narrow band Line of Sight (LOS) command and control (C2) for the MQ-25. There are no economy of scale savings. This Cost Element contains a component, the coupler, with a 24-month lead-time. Material and labor to assemble, integrate, and checkout the entire system is included in Cost Element 1.2.5 (Product Support and Assembly representing a cost reduction from the last submittal. From component ordering to ARC-210 system shipment, the process takes 30 months to complete: system is ordered 3 years prior to installation.

(3) Cost Element 1.1.4 funds procurement of the Mobile User Objective System (MUOS) Communication System for the CVN. The ship-based system leverages the NAVWAR Program of Record (PoR) containing the Digital Modular Radio (DMR). UMCS procures one DMR and four power amplifiers under this cost element with NAVWAR providing installation and sustainment; this approach reduces the amount of hardware required on board the CVN and results in a significant cost savings as compared to the originally planned ARC-210 system. DMR lead-time is 24 - 30 months; capability procured 3 years prior to installation. This system provides narrow band Beyond Line of Sight (BLOS) command and control (C2) using the MUOS satellites.

(4) Cost Element 1.1.7 funds technical refresh material procurement for UMCS subcomponents, particularly Commercial off the Shelf (COTS) that reach end-of-life/end-of-support in the commercial industry

(5) Cost Element 1.1.9 funds the procurement of the MUOS DMR Communication System for Operational Shore locations. This system leverages an existing shore-variant (other customer). With this variant only 1 system is required per shore site. This system provides narrow band Beyond Line of Sight (BLOS) command and control (C2) using the MUOS satellites. The system uses the same DMRs and power amplifiers as the ship-based system. Material and labor to assemble, integrate, and checkout the system is now covered in Product Support and Assembly (Cost Element 1.2.5).

(6) Cost Element 1.1.10 funds the procurement of the DTS-1 system, which allows the MQ-25 mission plan, developed on the MD-5 control station to be loaded onto the air vehicle. Material and labor to assemble, integrate, and checkout the racks is now covered in Product Support and Assembly (Cost Element 1.2.5).

(7) Cost Element 1.1.11 funds the procurement of the Unmanned Carrier Aviation (UCA) Transport System (UTS), which provides the interface between the control station and the networks. Material and labor to assemble, integrate, and checkout the racks is in Product Support and Assembly (Cost Element 1.2.5).

(8) Cost Element 1.1.12 funds the procurement of the Air Traffic Control (ATC) Picture for AVO, which provides situational awareness of the carrier airspace to the AVO. This system leverages existing CVN systems developed by NAVAIR.

(9) Cost Element 1.2.1 funds all ship unique installation tasking associated with the approved Ship Change Documents (SCDs) and are hull specific. This includes planning, ship-checks, installation guidance documents, technical data packages (TDPs), drawings, planning yard/shipyard services and labor required to modify the CVN spaces for UMCS. This Cost Element also includes MD-5 control station and ancillary system hardware installation and network/communication integration required to support MQ-25 operations on board the NIMITZ and FORD class carriers. Planning begins approximately 24 - 36 months before the start of a CVN availability period depending upon the scope of the modifications scheduled during that specific period (as highlighted in the Budget Description). Installations can occur across multiple availability periods. Cost increase in FY22 compared to FY21 is due to the pivot to the new control station. UMCS will be working on at least five CVNs in FY22: three will be in planning for FY23 and FY24 installations and two will be undergoing installation activities (one with significant rework due to the size, weight, and power changes of the new GCS).

Exhibit P-5, Cost Analysis: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	Item Number / Title [DODIC]: 1 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn
ID Code (A=Service Ready, B=Not Service Ready) :	MDAP/MAIS Code:	

(10) Cost Element 1.2.2 funds modification and integration with externally managed landing systems to include Aircraft Launch and Recovery Equipment (ALRE) and Joint Precision Approach Landing Systems (JPALS). This element also funds the installation of several ALRE systems.

(11) Cost Element 1.2.3 funds the modification and integration with externally managed C4I networks, exploitation systems, and communication systems required to support MQ-25 operations. Network integration (e.g. Consolidated Afloat Networks and Enterprise Services (CANES) and Automated Digital Networking System (ADNS)) is required for not only air vehicle (AV) Command and Control (C2) but also support the distribution of mission data to exploitation systems (e.g. Distributed Common Ground System - Navy (DCGS-N)). Integration with the communication systems is required for MQ-25 operations (e.g. Navy Tactical Common Data Link (NTCDL), Common Datalink System Tech Refresh (CDLS-TR), Military/Commercial SATCOM, MUOS, Link 16, and others).

(12) Cost Element 1.2.4 funds the long-range planning for NIMITZ and FORD class CVNs as well as the specialized engineering and program management labor required to manage the CVN installations governed by the Navy Modernization Process. Previously, these costs were include in Cost Element 1.2.1. FY22 cost increase compared to FY21 is due to the increase in CVN installations based on the new GCS.

(13) Cost Element 1.2.5 Product Support and Assembly, funds production planning, MD-5 control station non-recurring engineering (NRE), NRE for ancillary systems, integration with interdependent systems not covered under other cost elements, TDP creation, ship-qualified GCS design/drawings, and quality planning and procedures. This cost element also includes the assembly, test, checkout, and shipment of the MD-5 control station and ancillary systems. FY22 costs increased due to the design of the new GCS driving additional drawing, TDP, and integration changes along with ALRE systems update for FORD Class CVNs to incorporate MQ-25 operations.

(14) Cost Element 1.2.6 funds planning, integration, installation, and checkout of the new control stations with the operational shore site networks, communication, and infrastructure. FY22 cost increase compared to FY21 due to increase in facility design based on a new GCS and integration labor to support installs.

(15) Cost element 1.2.7 funds support the assembly and integration of the production GCS system for CVNs and shore location along with non-recurring engineering associated with hardening GCS for CVN environment.

(16) Cost Element 2.1.1 funds software licenses, correction of deficiencies, and the planning/establishing the Software Support Activity (SSA). Previously, this Cost Element was Stingray Operating Software Suite (SOSS), which was the UMCS software component. Nomenclature has changed with the new GCS.

(17) Cost Element 3.1 funds the programmatic and technical functions - Production Engineering Support (PES) - for the government to perform the role as Lead System Integrator (LSI) across the UMCS product line that includes program, financial, schedule management, and production engineering. Previously, UMCS included FORD class integration within this cost element; however, beginning in FY21 that tasking moved to Cost Element 1.2.4. FY22 cost increase compared to FY21 due to the additional work from the new GCS and transitioning more CVN work to OPN from RDTE.

(18) Cost Element 3.2 funds the organic logistics planning and execution across the UMCS product line for operational shore and carrier system support.

Exhibit P-5a, Procurement History and Planning: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	Item Number / Title [DODIC]: 1 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn

Cost Elements	OCO	FY	Contractor and Location	Method/Type or Funding Vehicle	Location of PCO	Award Date	Date of First Delivery	Qty (Each)	Unit Cost ($)	Specs Avail Now?	Date Revision Available	RFP Issue Date
1.1.2) Video Management System (VidMS)		2020	General Dynamics Information Technology / Falls Church, VA	C / CPAF	Pax River, MD	Jan 2020	Jan 2021	1	854,200.00	Y		Sep 2018
1.1.2) Video Management System (VidMS)		2022	General Dynamics Information Technology / Falls Church, VA	C / CPAF	Pax River, MD	Jan 2022	Jan 2023	1	989,583.00	Y		Sep 2018
1.1.3) ARC-210 Radio Communication System (RCS) Ship		2020 [19]	NAWC WOLF / NAWCAD Patuxent RIver, MD	Reqn	Pax River, MD	Nov 2019	Nov 2021	2	2,373K	Y		Sep 2018
1.1.3) ARC-210 Radio Communication System (RCS) Ship		2021 [20]	NAWC WOLF / NAWCAD Patuxent RIver, MD	Reqn	Pax River, MD	Oct 2020	Oct 2022	1	2,424K	N		Sep 2018
1.1.4) MUOS Digital Modular Radio (DMR) Communication System Ship		2020 [21]	NAWC WOLF / NAWCAD Patuxent RIver, MD	Reqn	Pax River, MD	Oct 2019	Oct 2021	2	403,760.00	N		Sep 2018
1.1.4) MUOS Digital Modular Radio (DMR) Communication System Ship		2021 [22]	NAWC WOLF / NAWCAD Patuxent RIver, MD	Reqn	Pax River, MD	Oct 2020	Oct 2022	4	411,814.00	Y		Sep 2018
1.1.4) MUOS Digital Modular Radio (DMR) Communication System Ship		2022 [23]	NAWC WOLF / NAWCAD Patuxent RIver, MD	Reqn	Pax River, MD	Apr 2022	Apr 2024	2	420,050.00	Y		Sep 2018
1.1.9) MUOS Digital Modular Radio (DMR) Communication System Shore		2020 [24]	NAWC WOLF / NAWCAD Patuxent RIver, MD	Reqn	Pax River, MD	Oct 2019	Oct 2021	1	1,211K	N		
1.1.9) MUOS Digital Modular Radio (DMR) Communication System Shore		2022 [25]	NAWC WOLF / NAWCAD Patuxent RIver, MD	Reqn	Pax River, MD	Oct 2021	Oct 2023	1	1,403K	N		
1.1.10) Data Transfer System (DTS) - 1		2021	Curtis-Wright / Buffalo, New York	C / TBD	Pax River, MD	Jun 2021	Jun 2022	1	278,519.00	N		
1.1.11) UCA Transport System (UTS)		2022	General Dynamics / Falls Church, VA	C / TBD	Pax River, MD	Jan 2022	Jan 2023	1	468,468.00	N		
1.1.12) Air Traffic Control (ATC) Picture (UYY-1)		2022	TBD / TBD	C / TBD	TBD	Jan 2022	Jan 2023	2	83,232.00	N		

Footnotes:

[19] Manufacturer is represented by NAWC WOLF due to multiple vendors supplying items. All items are assembled/integrated at NAWC WOLF in Patuxent River to produce the final end item.

[20] Manufacturer is represented by NAWC WOLF due to multiple vendors supplying items. All items are assembled/integrated at NAWC WOLF in Patuxent River to produce the final end item.

[21] Manufacturer is represented by NAWC WOLF due to multiple vendors supplying items. All items are assembled/integrated at NAWC WOLF in Patuxent River to produce the final end item.

[22] Manufacturer is represented by NAWC WOLF due to multiple vendors supplying items. All items are assembled/integrated at NAWC WOLF in Patuxent River to produce the final end item.

[23] Manufacturer is represented by NAWC WOLF due to multiple vendors supplying items. All items are assembled/integrated at NAWC WOLF in Patuxent River to produce the final end item.

[24] Manufacturer is represented by NAWC WOLF due to multiple vendors supplying items. All items are assembled/integrated at NAWC WOLF in Patuxent River to produce the final end item.

Exhibit P-5a, Procurement History and Planning: PB 2022 Navy		Date: May 2021
Appropriation / Budget Activity / Budget Sub Activity: 1810N / 03 / 3	P-1 Line Item Number / Title: 4269 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn	Item Number / Title [DODIC]: 1 / UMCS-Unman Carrier Aviation(UCA)Mission Cntrl Stn

(25) Manufacturer is represented by NAWC WOLF due to multiple vendors supplying items. All items are assembled/integrated at NAWC WOLF in Patuxent River to produce the final end item.